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Nutrition education for Cambodian refugees : evaluating a health intervention media project.

Barbara A. Poremba
University of Massachusetts Amherst

NUTRITION EDUCATION FOR CAMBODIAN REFUGEES: EVALUATING A HEALTH INTERVENTION MEDIA PROJECT

A Dissertation Presented

by

BARBARA A. POREMBA

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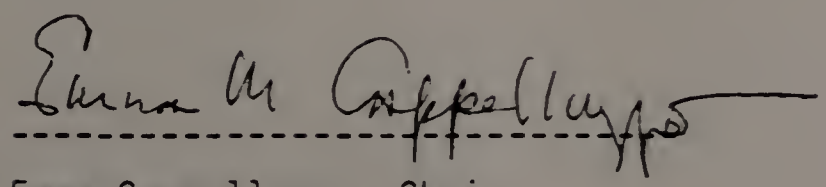
Approved as to style and content by:



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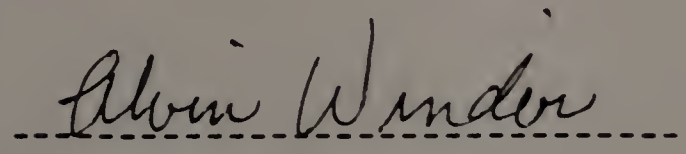

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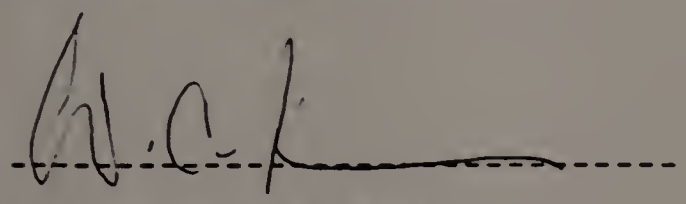

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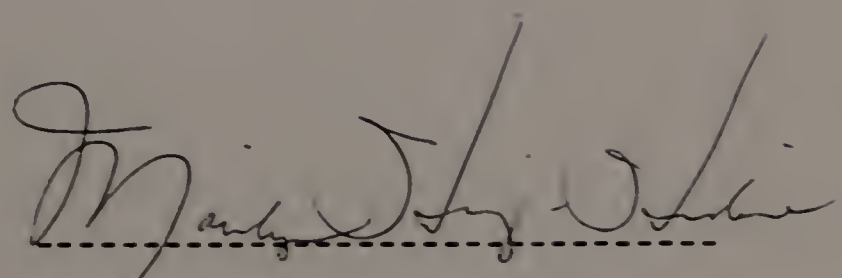

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School of Education

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ABSTRACT

NUTRITION EDUCATION FOR CAMBODIAN REFUGEES:

EVALUATING A HEALTH INTERVENTION MEDIA PROJECT

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BARBARA A. POREMBA, B.S., UNIVERSITY OF MASSACHUSETTS

M.S., BOSTON UNIVERSITY

M.P.H., HARVARD UNIVERSITY

Ed.D., UNIVERSITY OF MASSACHUSETTS

Directed by: Professor Emma Cappelluzzo

The purpose of this study was to test the video education tool, Choosing Cambodian Foods Wisely, to determine if Cambodian refugees would respond to this intervention as culturally appropriate and nutritionally educational. An evaluation study consisting of a pretest, posttest 1 and posttest 2 was introduced to a cluster sample of 20 Cambodian refugees; however, due to attrition, the analysis of the data was based on 17 cases. An ANOVA test revealed a significant difference between the means of the test scores. These results supported the hypothesis that the video education tool was effective in increasing the knowledge, attitudes, and behaviors of the subjects in regard to the nutritional elements iron, calcium, cholesterol, sugar, and salt. The research further suggested that these increases were sustained over a one month period. Ninety percent of the subjects reported that the video provided at least some culturally appropriate, accurate, and useful nutrition

information and that they would recommend the video to others. These study results suggest that health educators focus their attention on media methods to achieve health interventions for cultural groups.

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CHAPTER I

INTRODUCTION

Introductory Statement

The purpose of this study was to determine the effect of a health education intervention on a Cambodian refugee population. The ability to provide health information to specific cultural groups is a challenge to health education professionals. The United States is truly a matrix of many different cultural groups which continue to shape the character of the country. Today the melting-pot myth largely has been rejected and members of cultural groups do not have to discard their own traditions and values in order to be accepted. This reemergence of cultural unity permeates the actions of individuals, families, and social groups. Its consequences are pervasive and implications for practice are broad (Lipson & Meleis, 1985, p. 136).

Although Europeans continue to emigrate to our country, their numbers are far less that those from Southeast Asia. One of the largest groups from Southeast Asia is the Cambodians. According to the Massachusetts Office of Refugee Resettlement (1987), Cambodians resettled in Massachusetts since 1984 constitute the greatest percentage (47%) of all the refugee populations to settle in the state.

One and a half million Cambodians began fleeing Southeast Asia in 1975. Victims of political turmoil, torture, war, and famine, most refugees escaped the barbarous Pol Pot regime by crossing the border into Thailand. Since Thailand was unable to accept all of the refugees who wanted to stay, many were forced to emigrate to other countries. By 1979, the United States had resettled nearly 500,000 Cambodian refugees (Hoang, 1982). According to the Massachusetts Office of Refugee Resettlement (1987), there were 17,335 Cambodian refugees in Massachusetts as of 12/31/86. This figure does not include any of their children who have been born in the United States.

In addition to a variety of health problems, undernutrition and nutritional anemia are critical concerns. According to the Massachusetts Nutritional Survey (1983), the incidence of undernutrition was greatest for Southeast Asian children. The survey further identified nutritional anemia as a common finding in Southeast Asian children. It also reported that Southeast Asian refugees were found to be vulnerable to the effects of mass advertising and therefore prone to develop food habits detrimental to their health.

The early group of refugees who emigrated to the United States in the early seventies was primarily from the educated class. People from academia were targeted by the Pol Pot regime in its quest for a classless society. Those who did not escape were tortured or killed. The more recent wave of refugees has had little education in Cambodia.

Many cannot read or write even in their native language, Khmer. Therefore, providing health education becomes complicated not only because of the obvious language barriers but also because of their limited skills in Khmer.

With these language limitations in mind, strategies to provide health interventions to meet nutritional needs become problematic. How does one provide an educational intervention to large numbers of Cambodian refugees who not only do not speak or read English but who also may have limited reading skills in their native language? Since an audiovisual medium can be provided in a Khmer format, it may be an effective tool to provide health education to this population. However, merely translating nutrition information into Khmer is not the answer. A health education intervention which is void of cultural appropriateness is doomed for failure (Derryberry, 1952). Once developed, how does one know if the intervention has been culturally appropriate and effective in meeting the defined needs?

Developing such a nutritional intervention was the task of this author as part of a student group project at the University of Massachusetts, School of Public Health, Public Health Education Program. By working in collaboration with the Cambodian community, a slide-tape and pamphlet were developed through the sponsorship of the Pioneer Valley Area Health Education Council (AHEC). The objective in creating the media tools was to address the specific nutritional needs of the

Cambodian refugee population in a culturally appropriate way. Although well received by the Cambodian community, the author further developed the intervention into an action oriented videotape. Choosing Cambodian Foods Wisely addressed the five areas of nutritional concern in the Cambodian diet that were identified through a needs assessment which is discussed later in this paper.

Although the video was highly praised by the Cambodian as well as the public health nutrition communities, the effectiveness of the video in regard to nutritional health remained undocumented. Since project effectiveness is essential in assessing the impact of the intervention as evidence for support for such interventions, an evaluation study is an important component in the completion of the health education strategy. Thus, the purpose of this study was to test the nutritional education tool, Choosing Cambodian Foods Wisely, to determine if a sample of Cambodian refugees respond to the tool as both culturally appropriate and nutritionally educational.

Statement of the Problem

It is widely accepted that proper nutrition is paramount to good health (Kirk, Hamrick, McAfee, 1980). There are many programs such as the U. S. Department of Agriculture's WIC (Women, Infant, and Children) program and the Human Nutrition Information Service, which provide public health messages in the form of written materials,

films, videotapes, and television ads. Most of this health education material is provided only in the English language; only a handful of materials are available in Khmer. Yet, according to the Massachusetts Nutritional Survey (1983), Cambodian refugees were found to be vulnerable to mass advertising and therefore prone to develop food habits detrimental to their health. Their lack of English language skills affords them limited opportunity to make educated choices in regards to their nutrition.

Developing educational interventions to address nutritional health needs requires more than simply translating American nutritional materials into Khmer. Since Cambodians want to preserve their traditional customs which are reflected in their dietary practices, it is important to consider their specific needs in planning the nutritional program (Frye, 1989). Thus, a nutrition education intervention that reflects not only cultural traditions but also specific nutritional needs would seem to be an effective tool. However, this cannot be expressed with any degree of reliability without conducting an evaluation study to describe what impact this health education intervention has on a sample of Cambodian refugees.

Significance of the Study

In the past, films were the most widely used audiovisual aid in health education (Cauffman, 1963). They were effective in presenting

factual information for a wide variety of ages, topics, and teaching conditions. Their effectiveness was further increased when accompanied by an introductory presentation of the salient principles and a concluding summary. Green et al. (1980) postulated by way of extrapolation from research on the effects of mass media that films were effective in increasing knowledge, reinforcing existing attitudes, and facilitating behavioral change when there was a predisposition to action.

However, films have been expensive, requiring special operating equipment and conditions. The recent marketing of the VCR (videocassette recorder) which is capable of providing a near-film quality at a low cost has expanded the possibilities for health education programming. Most individuals as well as organizations either own or have easy access to a VCR player, making this medium ideal for health educators.

Deciding which audiovisual programs to use is a difficult but important task. According to Campeau (1974), decisions to purchase audiovisual programs have been based only on costs, availability, and user preference, not on evidence of instructional effectiveness. This is most often the case since few programs provide such information on effectiveness.

The Massachusetts Department of Public Health and the WIC program have been studying strategies to address the nutritional health needs of the Cambodian refugee population. The intervention presented in this study is one such strategy that was developed in collaboration with the Cambodian community and the Pioneer Valley Area Health Eduvation Council (AHEC). It was planned that if it proved to be effective, it would be made available on a larger scale to meet the nutritional needs of the Cambodian refugee population. The format for achieving this goal would be to first evaluate the intervention. Should the intervention prove unsuccessful, then the strategy would be redesigned in order to meet the stated objectives. However, should the intervention prove successful, then grant funding through the United States Office of Asian Affairs would be pursued. Then, both the intervention and the evaluation design would function as a model in providing effective health education to specific cultural populations.

Research Questions

The following questions will be discussed throughout this study:

1. Will viewing the video, Choosing Cambodian Foods Wisely, increase the Cambodian refugees' knowledge about the nutritional value of iron, calcium, cholesterol, sugar, and salt?

2. Will viewing the video, Choosing Cambodian Foods Wisely, increase the Cambodian refugees' positive attitudes toward appropriate choices of foods containing iron, calcium, cholesterol, sugar, and salt?

3. Will viewing the video, Choosing Cambodian Foods Wisely, result in Cambodian refugees appropriately utilizing iron, calcium, cholesterol, sugar, and salt in their food preparation or serving?

4. Will viewing the video, Choosing Cambodian Foods Wisely, affect Cambodian refugee viewers' eating behaviors with regard to foods containing iron, calcium, cholesterol, sugar, and salt?

5. Do Cambodian refugees view the video, Choosing Cambodian Foods Wisely, as culturally appropriate?

Definitions

Acquiescent response set (ARS): A tendency to agree with statements regardless of their content (Ware, 1978, p. 328).

Attitude: A relatively constant feeling, predisposition, or set of beliefs directed toward an object, person, or situation (Green, et al., 1980, p. xiii).

Behavior: An action that has a specific frequency, duration, and purpose (Green et al., p. xiii).

Culture: The ideas, values, and behavior that are learned by members of a social group; a set of rules that guides individuals, although they might not always be conscious of these rules (Bullough & Bullough, 1990, p. 523).

Culturally appropriate: In regards to providing service, being culturally appropriate is being relevant to and in accordance with the customs and belief systems of a cultural community. (Bullough & Bullough, 1990, p. 536; Lipson & Meleis, 1985).

Effectiveness: The degree to which a diagnostic, preventive, therapeutic or other action or actions achieves the intended result (Bates & Winder, p. 225).

Ethnocentrism: Regarding one's own race or cultural group as superior to others; a tendency to judge others in terms of one's own assumptions, regardless of their scientific validity (Bullough & Bullough, p. 523).

Evaluation: A process of measuring the effects of a program against specific predetermined goals or outcomes as a means of contributing to subsequent decision making about the program and improving the future performance of the program (Bates & Winder, p. 225).

Health: A state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity (WHO, 1963).

Health education: A change in health related behavior in individuals or groups that leads to an improvement in health status for those individuals or groups (Bates & Winder, p. 226).

Impact: The immediate observable effects of a program, leading to the intended outcomes of the program; intermediate outcomes (Green et al., p. 134).

Interventions: The part of a strategy, incorporating method and technique, that actually interacts with a patient or population (Green et al., p. xv).

Measurement: Methods and procedures for systematic observation, assessment, and assignment of numbers (Green & Lewis, 1986, p. 58).

Need: An estimation of the interventions required based on a diagnosis of the problem and, in populations, the number of people eligible to benefit from the intervention(s) (Bates & Winder, p. 183).

Needs assessment: A process used by health educators to identify the needs of a target population, needs assessment includes working with the population to determine what needs to be changed and exploring alternative ways or methods to implement the changes (Bates & Winder, p. 228).

Nutrition: The science and art of feeding the body. The science of nutrition is the interrelationship of foods, their nutrients, and bodily functions, which is necessary to maintain health and prevent disease. The art of nutrition is the application of the science of nutrition (Jarvis, 1981, p. 570).

Nutrition education: A means by which functional and scientific nutrition is transmitted to a population leading to the development of reasonable nutrition behavior (Kirk et al., 1980, p. 21).

Participant observation: A method described by Powdermaker (1966) in which the researcher promotes active participation and reflective dialogue in the study of cultural populations.

Planning: The conscious design of desired future states as described in a plan by its goals and objectives, planning incorporates the description of and selection among alternative means of achieving the goals and objectives, and the conduct of those activities necessary to the design and the activities necessary to assure that the plan is achieved (Bates & Winder, p. 228).

Transcultural: In providing service, transcultural care involves cognizance of people of culture in regard to their specific beliefs and values in order to assist them to meet health needs (Lipson & Meleis, 1985).

Summary

This chapter described the purpose of this study which was to determine the effect of a nutrition education intervention on a Cambodian refugee population. According to the Massachusetts Nutritional survey (1983), undernutrition and nutritional anemia were critical health concerns of Southeast Asian refugees. Providing a culturally appropriate and nutritionally educational tool was the challenge of the health intervention project. Merely translating nutrition information into Khmer would not be relevant to the unique culture. Although Cambodian refugees have limited access to health education materials available in their native Khmer language, the majority of these materials are in print form. This makes ability to read Khmer a necessity. However, many

Cambodian refugees have had little education in Cambodia and are unable to read Khmer.

Therefore, a video health intervention, Choosing Cambodian Foods Wisely, was created to address the nutritional needs of the Cambodian refugees. Since the video reflected not only cultural traditions but also specific nutritional needs it seemed to be an effective health education tool. However, in order to express this with reliability, an evaluation study was conducted to quantify what impact this health education intervention had on a sample of Cambodian refugees. The outcome of the evaluation study will provide evidence to determine if video interventions may be an effective method in providing health education to specific cultural populations.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter presents the review of the literature which provided the background information for this study. This literature begins with concepts of health and models of health education program planning. Next, literature describing the history, heritage, and characteristics of the Cambodian community are explored in order to present strategies to provide health education to this refugee population. Finally, approaches to the evaluatation of health education programs are reviewed.

Concepts of Health

Various concepts of health have evolved in response to health changes in our societies. Health professionals have investigated the determinants of disease using methods associated with various concepts of health and health components. Some of these models were the Ecological Model, World Health Organization Model, Holistic Models, High-Level Wellness Model, and Epidemiological Model.

The Ecological Model was essential for the investigation of infectious disease. This concept evolved from the traditional approach of

ecological balance. It involved a triad where the agent, the host, and environment were in dynamic equilibrium. When the balance was upset, disease occurred. Upsets may happen when the environment changed, the agent's ability to affect humans increased and/or the proportion of susceptible hosts increased in the population.

The development of this concept was a natural consequence of the acceptance of the "germ theory" postulated by Koch (Austin and Werner, 1974). It assumed a single causative agent (single cause/ single effect model) based upon statistically absolute correlations. Despite its inherent limitations, the ecology model has been applied to a great many of our new illnesses, diseases, and hazards.

The Ecological Model by Morris (1975, p. 173-180) was a derivative of the traditional approach of ecological balance of agent, host, and environment. In this model, agent factors were replaced with personal behavior factors. The model suggested situations where there might be no specific etiologic agent (multiple cause/multiple effect or multiple cause/single effect). It recognized that many factors influence a person's health.

The concept of health held by the World Health Organization (WHO), was that "health is a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity" (WHO, 1964). In this model, health was defined in terms of what should be,

rather than in terms of the components or factors which constitute health. The WHO concept has been a major thrust toward changing our belief systems concerning the dimensions of health. Unrestricted by a specific definition of health, it has led to the development of multi-dimensional models that have broadened the framework of what constitutes health. These models could be described as holistic.

Holistic means viewing a person and his/her wellness from every possible perspective, taking into account every available concept and skill for the person's growth toward harmony and balance. It means treating the person, not the disease. The holistic approach promoted the interrelationship and unity of body, mind, and spirit. A holistic approach differed from simply following an alternative therapy. It was not an alternative to conventional medical practice. Rather, it included judicious use of the best of modern Western medicine combined with the best health practices from east and west, old and new (Morris, 1975, p.5).

The new holistic concepts of health as perceived by Blum, Lalonde, and Dever reached the same basic conclusion. Health, with its many dimensions, contains four fundamental attributes: environment, life style, human biology, and system of health care. Blum (1974, p.3) called it the "environment of health"; Lalonde (1974, p.33) called it the "health field concept"; and Dever (1976, p.453) labeled it "an epidemiological model for health policy analysis." Blum suggested that

the width of the four inputs contributing to health indicated assumptions about their relative importance. The four inputs related to and affected one another by means of an encompassing wheel containing population, cultural systems, mental health, ecological balance, and natural resources. On the other hand, the assumptions of Lalonde and Dever were that the four inputs were weighted equally and must be in balance for health to occur.

The primary orientation of holistic health was towards healing conditions of illness. In contrast, the primary orientation of wellness was on increasing conditions of wellness (Travis, 1977, p. 4). Specifically, the High-Level Wellness Model described by Travis focused on four dimensions: physical activity, nutritional awareness, stress management, and self-responsibility. Wellness was a self-designed life style which allowed one to "be" in order to "do" and to "have." Travis illustrated wellness as an "illness-wellness continuum" (1977, p. 6). The neutral point in the center indicated no illness or wellness. Movement to the left showed poorer conditions of illness: signs, symptoms, disability, premature death. Movement to the right showed better levels of wellness: education, growth, self-actualization, high level wellness. While traditional medicine might bring one to the point of having no discernible physical illness, wellness went beyond and dealt with life experiences resulting in aliveness and enlightenment.

The Epidemiological Model was broad and comprehensive. It was developed in response to changing disease patterns from infectious to noninfectious. Four primary divisions were identified: system of medical care organization, life style, environment, and human biology. Life styles or self-created risks could be divided into leisure activity risks, consumption patterns, employment participation, and occupational risks. The environment included physical, social, and psychological dimensions external to the body over which the individual has little or no control. This model may have provided a more balanced approach to the development of health policy when compared with the limiting, traditional divisions of prevention, diagnosis, therapy, and rehabilitation or with public health, mental health, and clinical medicine (LaFramboise, p. 388-393).

Models of Health Education Planning

Health education cannot be given to one person by another. It is not a set of procedures to be carried out or a product to be achieved. Rather it is a dynamic, ever changing process of development in which a person is accepting or rejecting new information, new attitudes and new practices concerned with the objectives of healthful living (Bureau of Health Education, 1980, p.1).

The American Public Health Association clearly defined the parameters of health education in its policy statement which is as follows:

> Health education is more than the provision of information. While health education includes acquiring knowledge about health matters, its purpose is the use of that knowledge. It addresses the formation of values, the acquisition of decision-making skills and the adoption or reinforcement of desirable health practices. Health education honors individuals' right to privacy, their right to meaningful information, and their right to make their own choices (APHA, 1988, p. 2).

In order to be effective, it is important to recognize that any definition of health education must include not only the process but also the understanding that health education functions in direct relationship with the setting in which it occurs and the external environment in which it exists. Health educators are thus distinguished from other health professionals in their competency in assessing the needs of a given setting, planning and developing educational interventions, implementing those implementations through the development of a health education program, evaluating the program, and working with people in the process. Given these abilities, the health educator is able to enter a given setting and provide an effective educational intervention (Bates & Winder, 1984, p. 120).

The approaches used by health educators in the practice of developing educational interventions are referred to as models of health education program planning. The most widely known are Green's PRECEDE Framework for Health Education Planning, Sullivan's Comprehensive Health Education Model, Ross and Mico's Model for Health Education Planning, and Bates and Winder's Model for the Analysis of Health Education Planning and Resource Development.

Green's PRECEDE model (1980) showed seven phases that built on one another and led to the identification of specific problems. In phases 1 and 2, Epidemiological and Social Diagnoses, Green focused on identification of health problems as they related to the quality of life. In phase 3, Behavioral Diagnosis, Green made the distinction between the behavioral and nonbehavioral causes of a health problem. In phases 4 and 5, Educational Diagnosis, he identified the predisposing, enabling, and reinforcing factors that result in the behavioral causes identified in phase 3. Phase 6, Administrative Diagnosis, involved the development of the health education components of a health program and its implementation. Finally, phase 7, Evaluation, was identified as an essential part of the total process.

Sullivan's Comprehensive Health Education Model (1973), listed six steps in health education planning, operation, and evaluation. The first step, Involve People, included identifying the individuals

affected, locating skilled personnel, and defining roles and relationships. The second step, Goal Setting, related to health status, health education practices, and resources. The third step, Defining Problems, determined health service gaps that were linked to personal practices and to the lack of available resources. The fourth step, Design Plans, included identifying and evaluating available programs and preparing written statements concerning objectives, activities, timetables, and resources. The fifth step, Conduct Activities, involved obtaining funds, personnel, and facilities and developing policies and procedures necessary for implementing the plans. Finally, the sixth step, Evaluate Results, reinforced or substantiated the desired objectives and determined the extent to which the desired objectives were met.

Ross and Mico's Model for Health Education Planning (1980) was also designed in six phases: Initiate, Needs Assessment, Goal Setting, Planning/Programming, Implementation, and Evaluation. Although many of the steps were the same as Sullivan's model, an interesting feature of the model, first developed by Mico in 1966, was the delineation of a content, method, and process dimension for each phase. For example, in phase 1, Initiate, the content dimension included knowledge of the problem and client system, contract terminology and resources, and power and influence structures, community organization and culture. The method dimension included interviewing, developing entry or intervention strategies, making initial contract, and organizing concerned parties. Finally, the process dimension included awareness of need,

threat reduction, credibility, commitment, trust, readiness, involvement, leadership, and values clarification.

Bates and Winder's Conceptual Model for the Analysis of Health Education Planning and Resource Development (1984, p. 139-140) established the minimum conceptual framework necessary for a scientifically disciplined study of the relationship between plan and implementation. A distinguishing feature of the model was that it separated process from end results. There were five major points in the model: Health Education Plans, Demonstration Programs, Operational Programs, Research Programs, and Information and Statistics. Each represented an end result of the planning process. What linked these results was the process itself, the movement or sequence of events that occurs in health education program planning. In this model, policy analysis meant the process of needs assessment. Thus, the health education program plan (the statement of needs, objectives, methods, and evaluation) was an end result or product of a process of policy analysis, or needs assessment. Since the design of the plan called for identification of needs and the analysis of alternative policies that could meet those needs, health educators drew on information and statistics derived from previous research, demonstrations, and operational programs. It was after these data were analyzed that policy options were prepared and reviewed.

Of the four models discussed, Green's PRECEDE Framework has received the most acceptance because it has been tested in several different settings. However, some health educators fundamentally disagreed with its perspective. Green's perspective was based on the prescriptive approach of a "medical" model. Historically, public health has been defined as the diagnosis and treatment of the body politic (Bates & Winder, 1984, p. 129). In this view, the public health professional was seen as the physician, and the community was the patient. Public health disciplines, therefore, provided diagnoses and treatment to a community in much the same way that a physician would diagnose and treat a patient.

Many health educators were uncomfortable with this prescriptive approach because it placed public health professionals in an authoritarian position. By its very nature, the prescriptive approach presumed an authoritarian doctor-patient relationship. Sociologist Talcott Parsons described this relationship as the following:

> The patient (and usually his family) is by definition characterized by helplessness, lack of knowledge, and profound emotional involvement. As a result of this combination of factors, it is almost impossible to expect him or his family to exercise rational judgment with respect to his illness or treatment. He must, therefore, have complete

confidence in his doctor and accept his judgement unquestioningly on authority (Somers, 1977, p.6).

Those public health professionals who have disagreed with this public health view of an authoritarian, elitist relationship with the community have maintained a democratic point of view that seeks to understand people within the context of their culture and give full credit to people's knowledge, beliefs, and practices. They believed in involving people and making them an integral part of the decision-making processes that affected their own lives and the community at large. These educators used a theory and principles strategy, rather than a prescriptive strategy. Their assumption was that given complete disclosure of information and an understanding of possible consequences, people could and should make their own decisions. These health educators focused on "needs", not the undesirable "problems" (Bates & Winder, 1984, p. 136.).

Description of the Cambodian Community

Since 1975 more than 1.5 million people fled their homes in Southeast Asia because of war, political turmoil, and famine (Hoang, 1982, p. 710). By 1979, the U.S. had resettled almost 500,000 of these refugees.

According to the Massachusetts Office of Refugee Resettlement (1987), there were approximately 17,335 Cambodians resettled in Massachusetts. As shown in Figure 1 of Appendix D, the Cambodians make up the greatest percentage (47%) of all the refugee populations to settle in Massachusetts. The distribution of these refugees around the state is shown in Figure 2 of Appendix D and briefly described here. The Northeastern area of the state, which includes the cities of Lawrence, Lowell, Lynn, Revere, and Chelsea, reported the greatest numbers of Cambodian refugees- 13,045 (35.3%). The Boston area constituted the second greatest with 12,675 (34.3%). The Greater Boston area identified the third greatest with 4,160 (11.3%), followed by the Central area, which includes Fitchburg, Westminster, and Worcester, with 2,875 (7.8%), the Western area, which includes Amherst, Northampton, Holyoke, and Springfield, with 2,095 (5.7%), and the Southeastern area, which includes Brockton, Attleboro, Fall River, and New Bedford, with 2,060 (5.6%).

According to the Massachusetts Office of Refugee Resettlement (1987), the age distribution of the Cambodian refugees settled in Massachusetts revealed a relatively young population with only 11.1% over the age of 45 and 27.7% between the ages of 25 and 44. The ages of 6 to 24 constituted 34.4%. It is interesting to note that the Office of Refugee Resettlement identified that 26.8% of newly arriving Cambodians were 5 years of age or younger compared to approximately 6% in the overall population of refugees in Massachusetts.

The influx of Cambodian refugees into the United States occurred in two distinct waves. The first group of refugees in the early 1970's were educated and generally familiar with many aspects of western culture. They were economically and socially established in Cambodia and settled almost immediately in a new country (Hoang & Erickson, 1982).

The second wave of refugees, those leaving after the late 1970's, have been generally less educated and have endured great physical and emotional hardships (Ailken, 1982). Many of these refugees have lost most of their family members. They were forced to stay in refugee camps where severe overcrowding, poor sanitation facilities, severe health problems, and limited medical personnel and supplies were common (Hoang & Erickson, 1982; Muecke, 1983; Ailken, 1982).

In contrast to other refugee groups, such as the Vietnamese, the Cambodians experienced more suffering and usually had a prior refugee camp history in Thailand, Hong Kong, Malaysia, the Philippines, or Singapore (Okura, 1980). Muecke (1983) outlined four characteristics of Cambodian refugees that distinguishes them from other Asian groups that have resettled in the United States:

1. They have come to the United States by second, not first choice. Their first choice was almost invariably to

return to their native country if its political and economic conditions were similar to those that existed before the 1975 changes in government.

2. They have come to the United States with little preparation, scant belongings, and no nest of compatriots to greet or help them.

3. There is no realistic option for them to ever return to their homeland.

4. They are survivors. Although statistics are not available, it is commonly estimated that for every refugee resettled, one died in flight.

The Cambodians are distinctly different from the other Indochinese refugees, the Ethnic Chinese from Vietnam, the Hmong, the Loatians, and the Vietnamese. They have their own unique cultural and social heritage. Their language, Khmer, is completely different from the other Indochinese dialects and they are exclusively under the influence of the Buddhist religion (Okura, 1980).

The Cambodian people have a cultural background and value systems that are completely different among other Indochinese and in comparison with Americans. These differences are in terms of attitudes toward

human nature, the relationship between man and nature, time, space, life goals, and interpersonal relationships. These differences, described by Okura (1980), are as follows:

1. While Americans perceive human nature as basically evil but perfectible, the Cambodians tend to believe that human nature is basically good, however corruptible.

2. While the American culture has been built and predicated on overcoming and mastering nature, the Cambodian culture stresses harmony with nature.

3. While the Americans keep their eyes on the future and undertake tasks for the sake of improvement and progress, the Cambodians cherish and uphold their ties with the past and with history as are reflected in their traditional practice of ancestor worship, strong family heritage, and respect for the old.

4. While Americans are known for their willingness to move in order to achieve their life goals, Cambodians are reluctant to move away from their villages or homeland.

5. While Americans are oriented toward action and achievement-oriented tasks, Cambodians prefer activities

that develop their human essence, such as self-control, meditation, and caution in one's acts.

6. While Americans are very time oriented, the Cambodians display their Buddhist perception of life by lacking a sense of time urgency. This inattention to punctuality is often misinterpreted by Americans as carelessness or disrespect.

7. While the American culture stresses individualism, the Cambodian culture places primacy on the principle of lineal kinship. This principle so dominates the system of interpersonal relationships for a Cambodian that his individual goals are usually subservient to the goal of the extended family or reference group. An American achieves by standing out while a Cambodian achieves by blending in with his family or community network.

Because of the influence of their Buddhist religion, the Cambodians appear to display a passive attitude. This shows in their submissive acceptance and "yes" answers even in the face of stressful situations; as such, it reflects an avoidance of confrontation or a desire to please (Chng, 1984, p.17). In the United States, this natural tendency to passivity is compounded by fear and ignorance of the American governmental and legal systems. The Cambodians often fear that divul-

ging personal historical information or disagreeing with an authority figure can jeopardize their lives in their new country (Muecke, 1983). For Cambodians, the culturally appropriate response to stressful situations is calm avoidance or passive resistance (Chng, 1984).

Thus, in general, the Cambodians are a shy and introverted people who highly respect their elders and rely on strong family ties for their well-being (Vandeusen, 1981). They often live in extended family situations, up to 16 per living space. Since resettling in the United States, they live in various housing projects or in private homes. Some have jobs while others rely on public assistance and subsidized housing; the latter is usually the case for the widowed female heads of households. They prefer to have relationships with their own ethnic group and to some extent they resist acculturation. The Cambodians want to preserve their traditional customs which are reflected in their religious and dietary practices. They prefer to use a dual health care system which integrates the western approach with their traditional medical practices (Catanzaro & Moser, 1982).

Health Education for Cambodian Refugees

The need to develop health education strategies based on traditional health cultures was supported by the World Health Organization.

Health educators need to understand the health culture of a community in order to promote self-help skills, particularly at the family level (WHO, 1983).

Providing culturally appropriate, or transcultural health education is no easy task. Blinded by altruism, the health educator sometimes sees no other culture but his or hers; the inappropriateness of the suggested changes to the client's culture is seldom considered. Obviously, other than addressing the question of language, understanding behavioral patterns of people from other cultures has definite relevance to health education at all levels. According to Chng (1984, p. 17.), public health educators must be aware of their own culturally based eating practices and attitudes and should be careful not to project those onto clients; ethnocentrism, the attitude that one's own group is superior, has no place here.

As pointed out by Spicer (1952, p. 16.), problems in the application of knowledge begin to be solvable only when the specialist recognizes the existence of the other culture and starts to compare it carefully with his own. The lives of people in any society do not exist in separate dimensions. The linkage of the different aspects of life constitutes a starting point for the discovery of the nature of the human problems with which one has to deal in changing people's customs and beliefs. Knowing that changes in one aspect of life will have repercussions on other aspects is an important consideration to the health

educator whose role is to change behavior that will affect health. Ignoring this fact will cause negative repercussions in the outcome.

The Cambodians have great respect for their traditional practices. In a study by Frye (1989) of 30 Cambodian refugee women in Southern California, it was indicated that they were quite responsive to the use of scientific medicine in combination with traditional ways. Especially important were the ways of maintaining equilibrium such as in the ingestion of foods to restore balance. These traditional practices may provide a sense of control over illness and the alien culture. The Khmer will, most likely, blend their traditional practices with scientific methods regardless of advice to the contrary. Thus, it is recommended that the health educator support this merging of cultures unless obvious harm would result. The health educator can be a bridge to other health care professionals in interpreting the need of the Khmer people to maintain the Buddhist supported concept of holistic health care.

Refugees who have recently emigrated to the United States may need help with basic survival skills such as buying, storing, and preparing foods in their new environment. As pointed out by Boyle and Andrews (1989), the client's food habits and beliefs should always be the basis on which to build or improve dietary practices. Thus, the standard approach of three-meals-a-day and four-food-groups should not be emphasized if it conflicts with a client's cultural dietary patterns.

In examining nutritional patterns, culture determines what are acceptable and unacceptable foods. According to the United States Department of Agriculture/Department of Health and Human Services (1986), it was important to ask clients about possible food restrictions, taboos, or intolerances so that acceptable alternatives could be found without compromising nutrient intake. In suggesting dietary change, Bryant (1985) pointed out that two thirds of the world's population has lactose intolerance after early childhood due to reduced production of the enzyme lactase. Therefore, it is necessary to identify other culturally appropriate sources of calcium for these clients. For Cambodians, some examples of calcium rich foods are leafy green vegetables, tofu, and fish with edible bones (USDA/DHHS, 1986).

The public health educator should try to categorize nutrition practices as beneficial, neutral, or harmful. Obviously, the ideal is to promote change only in those practices that are harmful; beneficial or neutral practices should be supported and encouraged (Boyle & Andrews, 1989).

In order to address nutritional needs, Chng (1984, p. 18) stated that it was inadequate just to translate American recipes into the Cambodian language, Khmer. Many of these recipes are too difficult to prepare and contain ingredients totally unfamiliar to them. Since refugees need plenty of time to change their dietary patterns, nutritional improvements should be based on their native goods and planned

around their cultural norms. It may be necessary for the health educator to acquire a detailed knowledge of Cambodian food preferences, and methods of food preparation. In addition to having special food preferences, their daily eating habits are different from American habits. For example, foods eaten by Americans at evening meals, may be eaten by Cambodians for breakfast. These types of differences may create problems of misunderstanding.

According to Clark (1978), traditional group nutrition education might be inappropriate when it conflicts with cultural restrictions. For many ethnic groups, particularly recent immigrants, respect for authority and politeness in public may prevent asking questions about the advice given. One strategy identified which might be effective was to repeatedly invite the client to ask questions or to state any objections to the recommendations. The public health educator could indicate that other alternatives were possible and that the advice was intended as a negotiable suggestion. If the recommendations were culturally unacceptable, the client might be polite and apparently compliant but may ultimately disregard the suggestions. If the client was asked to keep a diary of foods eaten, the public health educator may find that thinly veiled excuses such as forgetting were offered as reasons for failure to do so.

It is sometimes difficult to determine how well the message has been understood by the learner. Asking the learner directly or through

an interpreter to repeat the instructions, demonstrate the procedures, or summarize the main points of discussion would help provide feedback as to the success of communication efforts. Limiting discussion to the most relevant and understandable information and using culturally appropriate methods should enhance the public health educator's ability to convey the message effectively. Teaching one concept at a time, limiting the length of time per session and avoiding professional and technical jargon could help prevent the client from becoming overwhelmed with information (Boyle & Andrews, 1989).

Werner and Bower (1986) have devised education strategies for health educators who are working with underserviced and underprivileged populations. For these populations, Werner and Bower viewed the health worker's educator role as more far-reaching than all of his or her preventive and curative activities combined (p.1-1). When community members were empowered with knowledge, they had the foundations for change and improvement within their community. They described the importance and validity of learning through seeing, doing, and thinking by the community members themselves. Educational activities that accomplished these goals were:

1. Making and using teaching aids (for example, models, flannel boards, flip charts, health posters, people as live demonstrators, flash cards, and games).

2. Drawing, taking, and using pictures (using community members and local scenes).

3. Telling stories (for example, to describe the treatment for parasites, tell a story of a mother who properly cared for her sick child).

4. Role playing (for example, allow people to assume the roles of others in order to learn from a different perspective).

5. Use of appropriate technology (p. 15-1).

In order to develop a means of health education, a number of pamphlets have been developed in Khmer. Those written by Acevedo (1986) deal primarily with family planning, health screening, oral surgery, and lead poisoning. The effectiveness of these tools has not been documented.

Miller and Hauenstein (1989) pointed out that language was a significant barrier for Southeast Asian women seeking access to maternity care. They stated that simply translating existing printed material into Khmer was not an adequate solution. They pointed out that this is because many Southeast Asians may not read Khmer and also because the information may not be relevant to their health concerns. Due to these

language and cultural barriers, some women might not obtain prenatal care.

Miller and Hauenstein sought a method of reaching childbearing women that overcame these barriers and was sensitive to staffing, financial, and time constraints. Through the process of a needs assessment, they found that many Southeast Asians own VCR's in order to view videotape in their own language. To overcome the language barrier, they produced a videotape in Khmer to encourage Cambodian women to seek prenatal care. The content placed more emphasis on the type of services available and how to obtain them, rather than promoting possible health benefits. The videotape was produced using still photography and Cambodian narration which permitted greater flexibility in making revisions as needed.

Miller and Hauenstein distributed the videotape to Cambodian community groups, social service organizations, and health care providers. The tape was shown at provider locations and was passed among households for home viewing. They conducted a process evaluation which indicated that the video was an acceptable method of conveying information on obtaining prenatal care.

Based on her previous research on the cigarette smoking habits of the resettled Laotian refugee population, Levin (1989) produced a video, in Lao, for presentation about the dangers of smoking cigar-

ettes. Funded by a grant from the American Cancer Society and produced with the cooperation of the Laotian community, she used basic health education principles to impart rather than impose information about smoking and cancer. To a group who previously were not conscious of the dangers cigarettes would have on the community, family and individual, the video was reported to have had extensive follow-up and a strong impact to avoid both denial and soft-pedaling. An English subtitled version was also available. No formal evaluation was conducted on the effectiveness of the video intervention.

Recognizing that newly arrived refugees may need help with basic survival skills such as buying, storing, and preparing foods in their new environment, Muldoon (1985) produced a video on basic health practices which included use of modern cooking facilities. This was funded by the Pioneer Valley Area Health Education Council in collaboration with the University of Massachusetts. A second video was also produced by Muldoon (1986) dealing with family planning and access to women's health. Data on the effectiveness of either of these videos were not available.

Evaluation in Health Education

One of the important assumptions of health education practice is that a given educational intervention will effect a given outcome in a given setting. It is essential that health educators know if change

actually occurred and if so, what critical factors are associated with the occurrence. Evaluation is the means used by health educators to measure the outcomes of a program and its value to the clients. It is the final stage of the program plan (Green & Lewis, 1980).

Weiss (1972, p. 5) defined evaluation as a way "to measure the effects of a program against the goals it set out to accomplish, as a means of contributing to subsequent decision making about the program and improving future programming." This definition included the major aspects of the evaluation process which are determining social purpose, determining outcomes, developing measurement criteria, and selecting appropriate research methodology.

The social purpose was a significant step in the evaluation process. It set the rules for the entire evaluation. What was important to consider was who conducted the evaluation and for what purpose. Since an evaluation was based on the value system of the evaluator, there were many types of evaluation. Weckwerth (1970, p. 15) asked, "Who has the right to decide?" He pointed out that "the one with the right to decide can, by specifying the what and how of evaluation, predetermine the outcome in terms of success or failure of the program."

Ferman (1969) noted the importance of how the decision maker valued the program. He stated that expectations for evaluation generally vary with a person's position in the system. Weiss (1972) pointed out that

radically different perspectives were derived from various groups of persons who may be interested in evaluation. These groups included policymakers, program directors, practitioners, contributors, taxpayers, parents, and consumers.

The second important consideration in determining the social purpose of evaluations was determining the purpose of an evaluation. Both MacMahon (1961) and Hutchinson (1960) were in agreement that evaluation served two purposes. The first purpose was to test the hypothesis that a given practice, if successfully carried out within specified limits, has a measurable beneficial outcome in a group on whom it was practiced. The second purpose was to find out whether a supposedly therapeutic or preventive practice was being carried out within specified limits. The former was termed an evaluation of accomplishment and the latter an evaluation of technique.

Scriven (1970) introduced the concepts of formative and summative evaluation into the discussion of purpose. Formative evaluation produced specific information which was fed back into the development of the program in order to improve it. Summative evaluation, conducted after the program is completed, provided information about the program's effectiveness.

Determining program goals or outcomes was one of the most difficult and critical steps in the evaluation process. Weckwerth (1970) opera-

tionally defined evaluation as comparing accomplishment with stated objectives. However, when goals were not stated or set forth in understandable terms, evaluation was extremely difficult to accomplish. The problem of abstracting goals in order to evaluate them has led to the development of two approaches to evaluation: the goal-attainment model and the systems model.

The goal-attainment model viewed evaluation as the measurement of the degree of success or failure encountered by a program in reaching predetermined objectives (Bates & Winder, 1984). Because the model used program goals as a yardstick to measure a program's performance, it was essential that goals be clear, specific, and measurable. Then these goals could be defined into operational terms reflecting the outcomes of the program. This model was accepted as an objective and analytical tool since it omitted the value bias of the evaluator by applying the goals of the program as the criteria of success. The model assumed that there was a relationship between a given health service and an ultimate health outcome.

Etzioni (1960) pointed out that a major limitation of this model is that it focused only on predetermined goals and therefore did not recognize or measure other possible goals. The model required a relatively constant environment, avoided the questions of adaptation to change, and ignored the problem of perpetuation of the program itself.

Etzioni further pointed out that programs evaluated by the goal-attainment model invariably resulted in a low rating of effective performance. He stated that such evaluations were artificial and frequently produced misleading conclusions. Because cultural systems could not be compared with social systems, a methodological error was committed; objectives that were not on the same level of analysis cannot be compared.

An alternative to the goal-attainment model was the systems model of Etzioni, Schulberg, and Baker (1968). This model recognized that organizations pursued other functions besides the achievement of predetermined goals. This model was concerned not only with the achievement of goals but also with the ability of an organization to establish itself as a social unit capable of achieving a goal.

The difference between the two models was that of perspective. The goal-attainment model had a narrow perspective. The focus was on achievement of a stated goal, product, or outcome. The systems model had a broad perspective. It examined how a program functions at a variety of levels and focused on no single goal, product, or outcome.

Green et al. (1980) identified three levels or stages at which a health education program can be evaluated: process, impact, and outcome. In process evaluation, the object of interest was professional practice, and the standard of acceptability was appropriate

practice. This quality was monitored by such means as audit, peer review, accreditation, certification, and government or administrative surveillance of contracts and grants. An example of a process measure of evaluation would be the number of pamphlets distributed as an indicator of success.

The second level in which a health education program could be evaluated was on its impact. This evaluation focused on what immediate impact the program, or some aspect of it, had on knowledge, attitudes, and behavior. An example of how impact evaluation might be measured would be the number of clients who came to a nutritional anemia screening.

The third level was outcome evaluation where the objects of interest were mortality and morbidity. Outcome evaluation involved a long-term undertaking requiring large population samples. An example of how outcome evaluation would be measured was in terms of increased survival and reduced mortality and morbidity.

According to Green et al. (1980), at this stage in the development of health education, impact evaluation rather than outcome or process evaluation was that which was most needed. They believed that the assessment of changes in knowledge, attitudes, beliefs, and especially behavior was the level of evaluation most likely to produce the greatest improvements in health education programs.

After the goals and outcomes for a program have been determined, the next step in the evaluation process was to develop specific indicators or criteria to measure the extent to which the stated outcomes were achieved. The development of measures, or instrumentation, is defined as a demanding process (Bates and Winder, 1984). The criteria to be measured would vary with the approaches that have been developed to measure the goals and outcomes of a program.

The criteria most commonly used to measure health programs were James' (1962) set of four criteria (effort, performance, adequacy of performance, and efficiency), Hilleboe's (1968) three foci for evaluation (performance of activities, results of programs, and benefits to the community), and Roemer's (1971) six criteria (costs, resources, attitudes, quantity of services, quality of services, and health status outcomes). A prevailing theme in all of these criteria was a hierarchy ranging from low to high with implied differences in importance.

The final step in the evaluation process was the selection of an appropriate research design and methodology necessary to conduct the evaluation. This determined the ultimate validity of the observations made about the success or failure of the program.

Evaluation could be done according to a number of different designs. These ranged from simple to complex approaches. Some examples

of designs were the historical, record-keeping, data inventory, comparative analysis, quasi-experimental, controlled-experimental, and evaluative research project. Each of the designs could utilize both qualitative and quantitative data, or a combination of both. Quantitative data was usually obtained from standardized tests, questionnaire results, and cost-benefit and cost-effectiveness analyses.

Qualitative data consisted of detailed descriptions of situations, events, people, interactions, and observed behaviors, excerpts from correspondence, records, and case histories, and direct quotations from people about their attitudes, beliefs, and thoughts. Patton (1978) described this as a design of detailed description of social interaction based on the tradition of anthropological field studies.

Summary

This chapter reviewed the existing literature to provide background information for this study. This literature included concepts of health and models of health education planning. It also presented literature which described the Cambodian community and explored health education for Cambodian refugees. Finally, approaches used in the evaluation of health education were discussed.

CHAPTER III

METHODOLOGY

Health Education Project Description

The Pioneer Valley Area Health Education Council (AHEC), a local chapter of a national agency, sponsored this project through a federal grant. The mandate of the grant program was to train health professionals to work with underserviced populations. The goal of this project was to provide an educational experience to a group of interdisciplinary health care students while providing health information to Cambodian refugees residing in Western Massachusetts. The target population consisted of approximately 640 refugees living in Hampshire county.

The first phase of the project focused on the division of tasks that each member could undertake. The immediate concern was to conduct a needs assessment in order to identify the type of health information most needed by the Cambodian refugees and to evaluate gaps in existing programs to avoid duplication of efforts and goals. Bimonthly meetings were held to report findings, coordinate activities, and discuss project directions.

After reviewing the literature and interviewing representatives of the Cambodian community, mental health interventions were identified

as the greatest need. As survivors of the Pol Pot holocaust, the Cambodians suffered from psychiatric disorders and drug and alcohol abuse. However, because this was not easily adaptable to the development of a health education tool, this area was deferred for a later project. The team decided to select the second need from the assessment, which was nutritional health.

The second phase of the project was the development of health education tools. Three nutritional tools were developed. They are listed as the following:

1. a slide-tape in Khmer and English
2. a pamphlet in Khmer.
3. video in Khmer and English.

Since the nutritional needs assessment identified four potential deficiencies/excesses in the Cambodian diet, the four areas of concern became the focus of the nutritional tool. These areas were calcium, iron, sugar, and salt. A fifth area of concern, cholesterol, was not identified until the making of the video. This occurred as a result of the author engaging in active participation and observation during the making of the video. Since the format of a slide-tape provided for some flexibility, the area of cholesterol was added. However, since the pamphlet was already printed, cholesterol was not included. All five areas were included in the video.

The completion of the slide-tape and the pamphlet concluded the planned program funded by the Area Health Education Council. The video version of Choosing Cambodian Foods Wisely was produced by the author. This video consists of a 12 minute Khmer version and an 8 minute English translation.

The third phase of the project was the evaluation component. The slide-tape was favorably reviewed by gatekeepers such as Cambodian health workers, the Asian Caucus of the American Public Health Association, and members of the Cambodian community. However, the actual impact of the video could only be measured by an evaluative study. This phase would then complete the health education process of assessing, planning, implementing, and evaluating a nutrition education intervention for Cambodian refugees.

Health Needs Assessment

The needs assessment is a process used by health educators to identify the needs of a target population. It includes working with the population to determine what needs to be changed and exploring alternative ways or methods to implement the changes (Bates & Winder, 1984, p. 228).

In doing a health needs assessment, the health educator should take into account the information and beliefs that the people have about health and the causes of illness. Derryberry (1952), stated the following:

> All people, including primitive cultures, have their own theories about maintaining health and curing sickness. These theories may provide feelings of as much security for those who hold them as do the explanations based on modern science. The magical systems and traditions providing this security are found among people in all areas of the world. Most people use these magical systems to build their own concepts of life. The health education worker who thinks that ignorant souls thirsting after knowledge will be glad to accept his views based on modern medical science is doomed to repeated failure (p. 3).

With this in mind, a needs assessment of the Cambodian refugee population was conducted. This consisted of a thorough review of the literature, a collection of the perceptions of state and local professionals involved with Southeast Asians, and extensive interviews with local and regional Cambodian refugees. In order to gain entry into the Cambodian community the cultural traits had to be taken into consideration. Much time and energy were spent to establish trust and credibility. Highly regarded community leaders, such as the local medicine

man and a Cambodian high school teacher, were identified in order to increase the accuracy, reliability, and acceptance of the project as well as to maximize Cambodian empowerment.

Much of the literature focused on health problems and contagious diseases identified upon U.S. entry or the reluctance of Cambodians to utilize the western health care system, preferring to rely upon herbal medicine, the balance between hot and cold, and coin rubbing (Hoang, 1982; Muecke, 1983; Vandeusen, 1981). Since teaching skills focusing on entry into and appropriate utilization of U.S. health care services had been addressed by Acevedo and Muldoon (1985, 1986), duplication of these efforts was not warranted.

Mental health problems and substance abuse caused by having been exposed to the horrors of Pol Pot were also identified (Okura, 1980). Because of limited expertise in addressing transcultural mental health needs and the difficulty associated with producing educational media tools to address these needs, this need was deferred for a later project.

The Massachusetts Nutritional Survey (1983) reported that the incidence of undernutrition in the state was greatest for Southeast Asian children. It identified nutritional anemia as a common finding in Southeast Asian children. The survey also reported that Southeast Asian refugees were found to be vulnerable to the effects of mass

advertising and therefore prone to develop food habits detrimental to their health. This finding might also suggest that exposure to health education media may promote more positive nutritional habits.

Since the paramount concern was that the needs assessment identify the type of health information that Cambodian refugees were in most need of and to evaluate gaps in existing programs to avoid replication of efforts and goals, it was decided that the problems illustrated by undernutrition, anemia, and detrimental food habits would be the focus of the health education intervention. This intervention would be timely and would provide for the development of a health education media tool that could be widely distributed among the Cambodian refugee population through existing nutritional programs (i.e. WIC).

Health Education Goals

The general goal of the health education project was to increase the nutritional well-being of the Cambodian refugee community through the dissemination of culturally appropriate dietary change recommendations.

The specific objectives were as follows:

1. to reinforce positive and healthy aspects of the Cambodian diet.

2. to provide an understanding of the relationship between certain diet deficiencies/excesses and disease.

3. to develop an understanding of certain practices that are beneficial (i.e. introducing children to milk) while others are detrimental (i.e. milk bottle caries).

4. to inform the Cambodian community of the existence and function of special supplemental food programs such as WIC.

5. to increase awareness of the necessity of incorporating certain western foods into the Cambodian culinary habits (i.e. dairy products).

6. to integrate East and West in their dietary practices for maximum efficiency and benefit.

Implementation of the Health Education Product

The implementation of these goals and objectives, as well as their formation, could not be achieved without the aid of the Cambodian community. The author did not want to be perceived by this target population as a professional seeking to correct maladaptations of Cambodians

to U.S. society, a conservative change agent, or a representative of social adjustment. The approach was to facilitate, mediate, formulate, and encourage consumer participation horizontally. This was accomplished by seeking input from the community, observing their customs without being judgmental, respecting their beliefs and traditions, and learning by reading and asking many questions. The method for achieving these goals was to promote active participation and reflective dialogue similar to the method described by Powdermaker (1966) as a role of a participant observer. As a result, problem posing became the process by which the educator and educatees grew and increased their level of cognition together (Freire, 1970).

One of the health education tools developed was a nutritional information pamphlet written in the Khmer language. This was a 9 x 12 paper folded to reveal eight sections of photos and Khmer captions (see Appendix A). Pages one and two of the pamphlet were addressed to pregnant women and children. This section stressed the importance of calcium and iron in the diet and addressed the dangers of using too much sugar and salt. Pages three and four focused on American snack foods and offered suggestions for a healthy diet.

To increase attention to the nutrition education pamphlet, a colorful paper was used and featured eight photographs of Cambodians and culturally reflective food choices. These photographs were taken with the consent of Cambodians at home, shopping in Cambodian markets,

eating at a Cambodian restaurant, and participating in a traditional Cambodian New Year celebration. Their collaboration and support in creating the nutrition tool enhanced the potential success of the intervention.

In order for the pamphlet to be written in Khmer, it had to be written first in English. In this stage, nutrition messages were given using clear and simple words to maximize comprehension. Moderation of the use of potentially harmful foods was stressed rather than strict avoidance. Cambodian foods were emphasized in suggesting dietary changes. Then the pamphlet was translated into Khmer. Some word phrases required change since it was not possible to translate all words literally. Finally, selected representatives of the Cambodian community translated the pamphlet back into English to assure accuracy in translation.

However, since many of the Cambodian refugee population could not read Khmer or English, it was agreed that this tool alone would not adequately meet the nutrition education needs of this group. An audio-visual medium was desirable in order to complement the pamphlet. By interviewing a number of Cambodians, it was determined that Cambodian refugees would be interested in an audiovisual medium. For reasons of low cost, equipment accessibility, and participant capability, a slide-tape format was selected which could be converted to a video mode.

After showing the slide-tape video, Cambodian refugees who viewed the tape reported that they would be more interested in an action-oriented medium. Therefore, videotape clips were inserted into the slide-tape to create the final video version entitled Choosing Cambodian Foods Wisely (Poremba, 1989). It was produced to complement the pamphlet or to be used alone. The video script is also included in Appendix A.

The purpose of the video was to educate Cambodian refugees to maximize their buying power in order to provide the essential nutrients for a healthy diet. By placing an emphasis on the positive aspects of the traditional Cambodian diet as well as recognizing the cultural significance of certain culinary practices, the 12 minute Khmer videotape (and accompanying 8 minute English translation) featured Cambodian refugees providing information specific to their population.

Evaluation Study Design

An impact evaluation was selected for this study since this level of evaluation was recommended by Green et al. (1980) as most needed in the development of health education. They believe that the assessment

of changes in knowledge, attitudes, beliefs, and behavior was the level of evaluation most likely to produce the greatest improvements in health education programs.

The research design and methodology selected to conduct an evaluation determines the ultimate validity of the observations made about the success or failure of the program. The evaluation design selected in this study was a quasi-experimental approach in which subjects acted as their own control in the application of the health education intervention.

The evaluation design consisted of a pretest, intervention, posttest 1 and posttest 2. There was no time lapse between the pretest, intervention, and posttest 1. There was a time lapse of one month between these and the follow-up posttest 2.

The three tests were designed to measure the impact of the program on the five areas of concern (calcium, iron, cholesterol, sugar, and salt) which were the focus of the videotape. The test items were designed to measure changes in knowledge, attitude, and behavior regarding these areas. In addition, some test items measured the cultural appropriateness of the health education intervention.

The specific objectives for the evaluation of the health intervention include the following:

1. Has the health intervention tool increased the Cambodian refugees' knowledge of the 5 areas of concern (calcium, iron, salt, sugar, cholesterol)?

2. Has the health intervention tool increased the Cambodian refugees' positive attitudes toward the 5 areas of concern?

3. Has the health intervention tool changed any of the Cambodian refugees' health practices?

4. Has the health intervention tool changed the Cambodian refugees' eating or cooking practices?

5. Is the health education tool perceived as culturally appropriate and sensitive? Would Cambodian participants recommend the health intervention tool to other Cambodian refugees?

Study Sample

A probability sample, in which all elements of a population have a known probability of being selected, was preferred for this study design. It is important to use a probability sample since it is the only type of sample that allows the evaluator to treat the sample as technically representative of the larger population (Green & Lewis, 1986, p. 225). Only in probability samples can the health educator rely on the statistical theory of sampling distributions to specify how well the values, or statistics, obtained in the study approximate the true values, or parameters, of the population (Chein, 1976, p. 516).

In the absence of true population scores, control of bias from sampling error must be achieved (Green & Lewis, 1986, p. 228). Sampling bias distorts the estimates of the true population values on the evaluation measures. Bias is introduced to the extent that the measures obtained from the sample do not reflect the actual underlying population values and limit the ability to generalize the study results to the total population. This bias can be controlled through the sampling procedure.

There are four types of probability sampling procedures: simple random sampling, stratified random sampling, systematic sampling, and cluster sampling (Green & Lewis, 1986). A cluster sampling method was

selected for this study. In the cluster sampling method, the total population is divided into clusters based on a natural or geographical grouping and then a predetermined number of clusters is randomly selected. All or some of the cases in the clusters may be used, depending on the needs of the evaluators. Ideally, clusters are themselves heterogeneous so that variability is achieved within each cluster. With this method, subjects are chosen only from each randomly selected cluster, not from each population cluster identified.

As shown in Figure 2 of Appendix D, the state of Massachusetts is divided into six geographic areas: Western, Central, Northeastern, Boston, Greater Boston, and Southeastern. The Western area which includes the cities of Amherst, Northampton, Springfield, and Holyoke was excluded from consideration in the study since the video, Choosing Cambodian Foods Wisely, had been shown to a number of Cambodian groups there. The Northeastern area which included the cities of Lawrence, Lowell, Lynn, Revere, and Chelsea was selected since it represented the largest percentage (35.3%) of Cambodians in Massachusetts and had no known exposure to the video intervention.

WIC nutrition programs and community health groups providing service to Cambodians in Lawrence, Lowell, Lynn, Revere, and Chelsea were contacted. Of these, only two programs in Lynn agreed to participate in the study. All of the programs in the remaining cities were unable to participate in the study due to prior commitments to

other research projects or disinterest in subjecting their clients to further research.

The study sample consisted of 20 Cambodian refugee women who resided in Lynn, Massachusetts, a large multiethnic city on Boston's North Shore. They originated from two programs, the WIC program and a community health program. Eight women were from the WIC group and all had at least one child under five years of age. Each was seeking to become a certified recipient of this federal food supplement program. Their children had to meet the criteria for nutritional risk by being below the fifth percentile for height and weight or by having anemia. The WIC group completed the pretest and posttest 1 as part of the initial certification process. They completed posttest 2 prior to receiving their food vouchers when they returned in one month. Three of the women did not return to complete the posttest since they had not met the qualifications for certification.

The other group was composed of twelve Cambodian woman who were not currently in the WIC program. These women were selected by a Cambodian health worker from a community health support group. In exchange for their participation in the study, these women received five dollars for each of the three tests that they completed. This small monetary incentive was essential to providing some continuity for the administration of the instrument over time.

The two groups were tested separately but their results were pooled for the analysis. Thus, the study sample consisted of one group of 17 Cambodian refugee women.

Instrumentation

The instruments used to measure the effectiveness of the health education tool are presented in Appendix B. The pretest consisted of 34 closed answer questions divided into 10 questions on knowledge, 8 questions on attitude, and 16 questions on current behavior. The 10 knowledge questions consisted of multiple choice items. The 8 attitude questions were in a 3-point scale consisting of agree, disagree, no opinion. The 16 behavior questions were in a 6-point scale consisting of most of the time, some of the time, and none of the time for the pretest and posttest 2; posttest 1 was also in a 3-point scale but in the format of the same as, more frequently, and less frequently.

Posttest 1 consisted of a total of 42 questions divided into 10 knowledge, 8 attitude, 16 predicted behavior, and 8 cultural appropriateness. The questions on cultural appropriateness were constructed in the same 3-point format as those in pretest and posttest 2 on behavior. All the questions on attitude and knowledge were the same as in the pretest. The questions of predicted behavior were similar to

those in the pretest except that they were written in the future, for example, "I will probably use..."

Posttest 2 consisted of a total of 34 questions divided into 10 knowledge, 8 attitude, and 16 reported behavior. All of the questions were identical to the pretest.

The construction of the questions was in simple language with a specific direction in mind, such as "did you know," or "would you use." The responses were designed to be easy to understand. The clarity and simplicity in the design of the questionnaire was especially important in order to facilitate accuracy in translation.

In addition, the instruments were designed to minimize the effects of acquiescent response set (ARS)--a tendency to agree with statements regardless of their content. According to Ware (1978), this could be best accomplished by balancing satisfaction scales with both favorably and unfavorably worded items. Questions designed with "yes" or "no" answers were also minimized. Because of a desire to please and an avoidance of confrontation, the Cambodian refugee often displays a submissive acceptance and answers affirmatively in the face of stressful situations (Chng, 1984). Thus, questions asking specific behaviors were used predominately instead.

Administration of Instruments

Since few Southeast Asian refugee adults are fluent in or even speak English, it was necessary that the administration of the instruments be facilitated by interpreters. Interpreters had to be able to speak English and the language they were to translate. To achieve accuracy in interpretation, it was best that the interpreter was of the same culture, of approximately the same age and social position, and of the same sex as the patient or the eldest member of the family if the refugee family was being seen together (Grasska & McFarland, 1982).

Before entrusting an interpreter with important health communication, the quality of their interpretation skills should be assessed. According to Muldoon (1986), quality control can be accomplished by a reverse interpretation. In this method, the health worker should give the interpreter a health message to translate verbally to another trusted interpreter of the same language. The second interpreter should then translate the message back into English for the health worker. The health worker could then evaluate the quality of the interpreter and his/her understanding of the interpreted message.

An interpreter must be familiar with both Western and Indochinese cultures, including body language, medical vocabulary, beliefs, traditional healing practices, vernacular phrases, and physical examination

procedures (Hoang & Erickson, 1982; Grasska & McFarland, 1982). The interpreter must also be aware of his/her role as a communication medium and the possible negative ramifications of interjecting personal views or feelings into the message (Grasska & McFarland, 1982; Santopietro, 1981).

Muecke (1983) has outlined five points health workers dealing with foreign language interpreters should keep in mind:

1. Use basic words and simple sentences, and use nouns rather than pronouns.

2. Paraphrase words that carry much meaning (i.e. "workup") in order to be specific about the intended meaning.

3. Avoid use of metaphors, colloquialisms, and idiomatic expressions.

4. Learn and use basic words and sentences in the patient's language.

5. Invite correction of the health worker's understanding of the material at hand ("Am I understanding you correctly that...?").

According to Muldoon (1986), these considerations for accurate spoken interpretation also applied to written translation. The translator must be able to write in the native language and English, have a knowledge of Western medical terminology, and an understanding of both cultures involved in the communication. The quality control procedures of reverse translation for written interpretation were similar to those procedures for spoken interpretation. The translated message should be translated back into English by a second trusted translator to check the integrity of the intended message.

In this study, three Cambodian translators participated separately in insuring correct interpretation of the instruments. Although a very time consuming and arduous task, this process was essential to eliminate any error due to the language barrier. Medical terminology was minimized and basic words and simple sentences were used. Two interpreters served as a team to accomplish the primary translation. One interpreter was a Cambodian woman who is a social worker with a bachelor of arts degree. She has been reading, writing, and speaking English for a number of years. She also reads, writes, and speaks Khmer. She has made two trips to Cambodia since emigrating here about ten years ago. However, she did not feel confident in her ability to write the tests in Khmer. Therefore, her father, who speaks very little English, worked with her in preparing the written translation. Finally, a third Cambodian woman who works for the WIC program translated the Khmer document back into English to control for clarity in understanding.

The actual administration of the tests consisted of reading the translated test aloud to the participants even though some did state they were able to read Khmer. This served as a control for the possibility that some participants may have been embarrassed to say that they could not read Khmer in front of their peers or a desire on the part of the subjects to please the tester. Each subject marked her answers on the test forms. All subjects were given a code number in order to insure confidentiality and to provide for a matching of each subject by pretest, posttest 1, and posttest 2 for the analysis.

Anticipated completion of the pretest was approximately 10 minutes. Following the administration of the pretest, the subjects viewed the 12 minute video, Choosing Cambodian Foods Wisely, in Khmer. After viewing the video, the subjects completed posttest 1 which was anticipated to take approximately 15 minutes. Total time for this session was planned to be approximately 40-45 minutes. In order to control for unpredicted problems in the administration, one hour was scheduled for this session.

Posttest 2 was administered after a one month time lapse to evaluate sustained change. The total time anticipated for this follow-up session was approximately 15 minutes. Again, in order to control for the unpredicted, a 30 minute session was scheduled.

Planned Analysis

The SAS statistical package was selected to analyze the data. Initially, the two groups would be analyzed separately to see if there were any significant differences between them. If there were no significant differences, then the groups would be pooled together for the analysis.

The item analysis procedure was also selected for use on the 10 knowledge questions. This test examines the scores for each test question by comparing the responses of the highest and lowest scorers. By comparing the top and bottom twenty percent, this test provides information as to the item's ability to discriminate. The test statistic obtained, called the discrimination index, would provide information on the content validity of each test item (Layton, 1985).

Descriptive measures would also be applied to describe the dependent variables (knowledge, attitude, behavior) in regard to frequency, central tendency, and dispersion. These measures include the mean, median, mode, range, variance, and standard deviation.

A repeated measure analysis of the variance, or ANOVA, would be the selected test statistic. In ANOVA designs, the null hypothesis usually states that the means of various groups are all equal. A rejection of the null hypothesis is ambiguous when there are only two

groups. It is difficult to tell at a glance which pairs of means are different from each other. These questions can be answered by using an ANOVA. This method yields an F statistic accompanied by probability values. A repeated measure must be used in this instance since the author is using replicate observations which must be accounted for in the analysis. Data analysis that fails to distinguish between observations on the same individual and observations on different individuals is entirely meaningless. Since the goal pertains to the change in test scores, the most important item regarding sample size is the number of different individuals and not the total number of observations. With such an objective, the data analysis would most profitably be carried out by a determination of the means of the replicate observations on each individual being tested (Colton, 1974).

Validity and Reliability

The validity and reliability of a study are always a function of the instruments, the conditions of administration, and the population being measured (Green & Lewis, 1986, p. 114). An instrument is only valid to a certain extent and within a context, under certain conditions of administration, and with a particular sample of respondents. Minimizing biasing error due to the acquiescent response set (ARS) and maximizing the item's ability to measure the concepts enhances validity.

The content validity focuses on the degree to which the instrument has adequately sampled from the total possible meanings of a concept (Green & Lewis, 1986, p. 104). Assessment of content validity begins early in the development of the instrument. Judging the content validity can be established by an expert (face validity) or a panel of experts (consensual validity) who examine and rate the appropriateness of each item in the completed instrument. The best way to achieve content validity is through a five-step process. These include review and synthesis of literature, dialogue and exchange with experts, identification of substrata of concept, identification of items, and item analysis.

The construct validity is the extent to which the hypothesized theoretical relationships between the concepts and their measures are verified or not verified on the basis of obtained data (Green & Lewis, 1986, p. 108). It is an ongoing process in which relationships between concepts are tested and revised on the basis of repeated studies. No single measure summarizes an instrument's construct validity. Rather, multiple measures, taken together, provide a comprehensive profile of the construct validity of an instrument. Methods of measuring construct validity include discriminant analysis, factor analysis, and analysis of the variance (ANOVA).

The external validity refers to whether the results obtained from the study can be generalized to others within the specified target population (Green & Lewis, 1986, p. 178). It is threatened when the evaluator exercises too much control or collects so much data from people that their behavior is influenced in ways that would not be the same if they were exposed to the same health education under usual circumstances. The acquiescent response set (ARS) is an example of a threat to external validity. Some ways to counteract this threat to external validity are the use of unobtrusive test measurement and sampling.

The internal validity refers to the assurance that the results obtained from an evaluation can be attributed to the intervention being evaluated (Green & Lewis, 1986, p. 183). It is threatened when the evaluator does not have sufficient data or control to rule out competing explanations for the results. Some threats to internal validity include the following:

1. History--that is, extraneous events such as a television program aired between pretest and posttest.

2. Maturation--that is, the growth and development of subjects that occurs with the mere passage of time between pretest and posttest.

3. Testing--that is, the effect of the pretest on the posttest (e.g., experience with the test).

4. Instrumentation--that is, changes in the measurement tools or procedures between the pretest and posttest.

5. Interaction between the pretest and the educational program.

The reliability of an instrument refers to its dependability and consistency. Although validity is affected by both systematic error as well as random error, reliability is influenced only by random error (Green & Lewis, 1986, p. 83). Random error is a disturbance that results from a multitude of factors. It has three components, which are the physical condition of the instrument, the environment or testing conditions under which the instrument is administered, and the temporary condition of the respondent.

The instrument should be legible and readable for the target population. Item wording should be unambiguous and written using simple and easily understood words. Instructions should be clear and concise. If the items or instructions are ambiguous, error variance increases.

The environmental testing conditions should be pleasant and non-disruptive. Room temperature, lighting conditions, seating, and noise levels can affect a responder's score on the instrument. Controlling these conditions can reduce errors of measurement.

The temporary physical and emotional states of the subjects affect the test scores. To the extent possible, measurements should be completed when personal symptoms or distress are controlled or within a tolerable range.

By controlling, to varying degrees, one or more of these random error components, different true scores and error scores are defined (Lord & Novick, 1968, p.39). The goal in improving an instrument's reliability is to maximize the variance of the individual's differences while simultanelously minimizing the error variance.

The validity and reliability of this study relied heavily on the instruments developed for use in the study. Much attention was devoted in designing instruments that would be able to measure important nutritional information accurately and evaluate cultural appropriateness. The construction of the items was completed through the collaboration of Cambodian volunteers and other health professionals having considerable experience with the Cambodian community which increased the content validity. The use of three different translators using a reverse translation technique greatly enhanced the validity

and reliability of test items in regards to language. The content analysis achieved through the discrimination index statistic and the construct analysis achieved through the analysis of the variance (ANOVA) procedure provided quantitative support to validity.

Concerns regarding acquiescent response set (ARS), a tendency to agree with statements regardless of their content, were minimized in the construction format of the items. This reduced the threat to the external validity and and therefore improved the generalizability. The threat to internal validity was controlled by a study design in which history, maturation, and instrumentation were controlled by a pre-test, intervention, posttest 1, and posttest 2 design. Error variance regarding reliability was minimized by careful attention to perfecting the physical condition of the instrument, creating adequate and stable environmental test conditions, and reducing the stress of the participants.

Scope and Limitations

A probability sample which is technically representative of the larger population and a quasi-experimental design were used in this study. The design maximized internal validity by emphasizing strategies which provide convincing evidence that the educational intervention, not other sources, produced the observed results. It also maximized external validity by emphasizing strategies that allow

for the generalizability of the obtained results to similar populations (Green & Lewis, 1986, p. 222).

It is not always possible to employ the ideal design and all of the controls to every study (Green & Lewis, 1986, p. 195). Although this study design included many controls to maximize validity and reliability, it is important to note that there remained some limitations to this study. With regard to external validity, this study did not randomly select from the five clusters. Rather, one cluster that seemed most representative of the Cambodian population was selected. Thus, this study can be generalized to this cluster and probably for the state of Massachusetts. It is a limitation of the study to generalize these findings beyond this.

Confounding variables regarding access to nutritious foods such as cost and availability might also be a limitation in the design. The author addressed this by suggesting a variety of foods and many low cost alternatives. Other confounding interacting variables such as exposure to other forms of nutrition education between posttest 1 and posttest 2 could not be controlled. However, no confounding interacting variables could be accounted for between the pretest and posttest 1. The effect of the pretest on the posttests cannot be evaluated since no control group was available to include in the study design. Thus, instrumentation is also a confounding variable.

Summary

This chapter described the health education process used in the design and implementation of a nutrition education tool for Cambodian refugees. This included a description of the health needs assessment, the health education goals and objectives, and the actual implementation of the health education product. The evaluation study design was explained and the development and administration of the test instruments was described. Finally, the planned analysis and the scope and limitations of the study were defined.

CHAPTER IV
ANALYSIS

Introduction

This evaluation study was introduced to 20 Cambodian refugee women residing in Lynn, Massachusetts. A brief description of the purpose of the study was given in Khmer and preceded the specific instructions for each test. The pretest and posttest 1 were administered in August of 1990 and the posttest 2 was administered in September of 1990. Twenty women participated in the study in August; eight who were seeking certification from the federal nutrition program WIC and twelve who were selected by a Cambodian health worker. However, only 17 subjects participated in the study in September. The three women who did not return for the study were from the WIC program group and had not been certified in the nutrition program. All of the women who were selected by the Cambodian health worker returned for the study in part due to the fact that they were paid five dollars to complete each test. Therefore, the analysis of the data was based on the 17 subjects who completed all three tests. However, the item analysis was based on all available test scores since each test was analyzed separately.

Item Analysis

An item analysis was conducted on the knowledge question variables of the three tests. The item analysis test served as a quality control procedure carried out after a test was administered to assist in judging which items were discriminating and which needed revision. Usually item analysis is computed only for dichotomously scored items, such as multiple-choice and true-false. It entailed computing a difficulty index and a discrimination index for each item. The difficulty index (p) was defined as the proportions who answered an item correctly. The discrimination index (D) was defined as the difference in the proportions of correct responses between upper and lower groups. Upper and lower groups in this definition referred to the percentage of subjects who obtained high and low scores on the test (Layton, 1985).

Mehrens and Lehmann (1984) explained the standard procedure in computing difficulty and discrimination indices when test results were known. First, the test results were arranged in order, from high score to low score. Second, the upper and lower groups were selected with the goal of making the groups as large but also as different as possible. The ideal percentage is 27% of scores for the upper group and 27% of scores for the lower group. However, for groups of less than 40, upper and lower halves may be used although some convenient number close to 27%, e.g., one-forth or one-third, may be used without much loss of accuracy.

Third, for each item, the number in the upper and lower groups that selected each alternative was counted. Fourth, the number in the upper and lower groups that chose each alternative was recorded. Fifth, the difficulty index (p) of each item was computed by dividing (R) the number of correct responses (using only upper and lower groups) by (T) the total number in the two groups, then multiplying by 100. The formula is as follows:

$$p = \frac{R}{T} \times 100$$

Finally, the discrimination index (D) was computed by subtracting (Rl), the number of correct answers in the lower group, from (Ru), the number of correct answers in the upper group, dividing by one-half (T), the total number in the two groups, then multiplying by 100. The formula is as follows:

$$D = \frac{Ru - Rl}{0.5(T)} \times 100$$

The difficulty and discrimination values obtained assisted in judging the quality of each item but they did not dictate whether an item should be retained, discarded, or revised. In general, the higher the discrimination index, the better the item. However, for small

groups the discrimination values will be lower so a discrimination of 20 or more is considered good. The ideal difficulty score for an item was in the middle range which made possible the best discrimination but a wide range of difficulty (about 25 to 75) was acceptable. Items that everyone answered either correctly or incorrectly had a discrimination score of zero. Although these items provided little information about the performance of a group of examinees, they did not necessarily have to be deleted if the item tests important content. In addition, it was acceptable to have some items that everyone got correct in order to increase the test-takers' confidence (Layton, 1985).

Item analysis was carried out on each of the three tests. The results were presented in Tables 1 through 3 of Appendix C. For the pretest, all twenty tests were utilized in the item analysis due to the small sample size as well as an obvious natural division between the two groups. Sixty percent of the items showed good discrimination (30 or higher), 30% of the items showed marginal discrimination, and 10% of the items showed no discrimination. The difficulty index (p) of 80% of the items was in the acceptable range of 25 to 75. Only 20% percent, or two of the items, were in the very difficult range (one item scored a 20 and one item scored a 5). These two items also showed either no or marginal discrimination. However, the other two items which showed no or marginal discrimination were in the middle range of difficulty. Thus, the item analysis for the pretest resulted in an adequate discrimination index and difficulty index. Thus, in the judgement of the

author, the pretest met the criteria of a good instrument which would provide meaningful information.

An item analysis was done on posttest 1. Since there was the greatest difference between the upper 30% and the lower 30%, the item analysis was based on this group arrangement. Sixty percent of the items showed very good discrimination (30 or higher) and 10% of the items showed marginal discrimination. Thirty percent of the items showed no discrimination and an easy difficulty index, with all or nearly all of the respondents scoring correctly on the item. Half of the items scored a difficulty index in the easy range and half of the items scored a difficulty index in the average range. Since the majority of the items showed good discrimination, the author was less concerned with the level of difficulty in regard to its overall impact on the test results. Therefore, the author concluded that the items met the criteria of an acceptable test which would provide meaningful information.

Finally, an item analysis was also done on posttest 2. Because of the small sample size (n=17) in the posttest 2 group, the top eight scores and the bottom eight scores were used for the item analysis. In the analysis, 40% of the items showed good discrimination (20 or higher) and 20% of the items showed marginal discrimination. The remaining 40% of the items showed no discrimination and a very easy difficulty index, with all or nearly all of the respondents scoring the

correct answers for these items. Forty percent of the items had a difficulty index in the average range and 60% had a difficulty index in the easy range. Since the participants had taken the test twice before and had opportunities to discuss the test questions among themselves, it is plausible that degree of difficulty and discrimination could be affected. This problem could have possibly been avoided by the construction of different test items but the reliability of the test measurement would have been further compromised.

Therefore, given the results of the item analysis, it was concluded that the three test instruments used to measure the knowledge variable provided meaningful and accurate information.

Pooling of the Data

Originally, the two groups of eight and twelve were looked at separately in regard to descriptive measures. However, analysis of the variance supported the hypothesis that there was no significant difference between the two groups on the knowledge variable of the test. The statistics for the two groups on the pretest were presented in Tables 4 through 6 of Appendix C and are briefly described here. For the WIC group in the pretest (n=8), the mean was 37.5 with a standard deviation of 9.68253 and a range of 20-50. For the other group (n=12), the mean was 47.5 with a standard deviation of 15.8771 and a range of

10-70. The analysis of the variance resulted in an F ratio of 2.2888 with a p of 0.145 (degrees of freedom = 1 and 18).

In posttest 1, the WIC group (n=8) had a mean of 71.25 with a standard deviation of 5.99471 and a range of 20-80. For the other group (n=12), the mean was 75 with a standard deviation of 13.8442 and a range of 40-100. The analysis of the variance resulted in an F ratio of 0.46997 with a p of 0.508 (degrees of freedom = 1 and 18), thus also supporting the hypothesis that there was no significant difference between the groups on the variable knowledge. These statistics are presented in Tables 7 through 9 of Appendix C.

Therefore, since the original two groups showed no significant difference between them in the knowledge variable and since the loss of three subjects from the smaller group further depleted a small sample, the two groups were pooled together for the analysis of the data.

Variables

The variables used in this study are as follows: kg1-kg10, knowledge; at1-at8, attitude; bh1-bh16, behavior; abc, category for each file, pretest, posttest 1 and posttest 2; knowl, sum of all kgs; alti, sum of all ats; behav, sum of all bhs; total, sum of knowl, alti, and behav. The ten knowledge question variables were as follows: kg1, cholesterol (eggs vs. milk, rice, fish); kg2, calcium (keep bones and

teeth healthy vs. prevent anemia, build muscles, prevent blindness); kg3, calcium (whole sardines vs. eggs, red meat, fruit juice); kg4, iron (red meat vs. milk, fruits, bread); kg5, salt (oyster sauce vs. bananas, milk, eggs); kg6, cholesterol (heart attack vs. cancer, arthritis, ulcers); kg7, fortified rice (iron vs. calcium, cholesterol, sugar); kg8, monosodium glutemate (salt vs. sugar, glucose, pepper); kg9, junk foods (sugar and salt vs. calcium and cholesterol, calcium and iron, salt and iron); kg10, constant sucking on milk bottles (tooth decay vs. kidney infections, rickets, skin disease). These variables were scored one point for the correct response and no points for incorrect responses.

The eight attitude question variables were rated on a 3-point scale of agree, disagree, or no opinion and are as follows: at1, importance of serving foods containing calcium and iron; at2, concern about limiting the amount of cholesterol in their diet; at3, reading the amount of salt in foods and adjusting their diet accordingly; at4, without sugary foods, people will not have enough energy to work or play; at5, benefits of having a baby sleep with a bottle are greater than the dangers; at6, by eating what appeals to them, people will choose a healthy diet; at7, Cambodian foods are healthy; at8, children who drink other liquids do not need milk. These variables were scored one point for the correct response of agree (or if written in the negative, disagree) and no points for no opinion or disagree (or if written in the negative, agree).

The sixteen behavior question variables were rated on a 6-point scale in the pretest and posttest 2. Thirteen behavior questions listed the following options: less than once a week; once a week; twice a week; three times a week; four times a week; five or more times a week. However, three of the behavior questions concerned with the use of milk- bh7, bh9, and bh14- listed the following options: never or less than once a week; once a week; several times a week; once a day; twice a day; three or more times a day. In addition, two behavior questions which referred directly to practices with babies or children in regard to milk consumption- bh5 (babies sleeping with bottles) and bh7 (frequency children drink milk)- listed an additional option of, "I have no babies/children who live with me." The six point scale was scored as a percentage out of the possible six. For example, bh7 read, "My children drink milk"...never or less than once a week, 1/6; once a week, 2/6; several times a week, 3/6; once a day, 4/6; twice a day, 5/6; and three or more times a day, 6/6. The two subjects who responded, "I have no children who live with me," received a score of 3/6. This median score was given since a score of zero or one would unfairly skew the test results.

The sixteen behavior question variables in posttest 1 were identical to the pretest and posttest 2. However, a three-category scale of more than before, the same as before, or less than before was used. A favorable response was scored one point; an unfavorable or unchanged response received no points.

Six of the seven variables to evaluate the cultural appropriateness of the video were rated on a three-category scale of most of it, some of it, none of it; the final variable was rated as yes, no, maybe. These variables were as follows: cul1, amount of new information presented; cul2, usefulness of the information; cul3, ease of understandability; cul4, appropriateness to Cambodian culture; cul5, difficulty to understand; cul6, accuracy to Cambodian culture; cul7, recommendation of video. These variables were scored one for some of the video or maybe; two for most of the video or yes; and three for none of the video or no.

First Research Question

The first research question investigated if viewing the video, Choosing Cambodian Foods Wisely, would increase the Cambodian refugees' knowledge about the nutritional value if iron, calcium, cholesterol, sugar, and salt. There were ten questions which applied to these five areas of nutritional concern, each with a weight of one point. The results of the descriptive statistics were presented in Tables 10 through 12 of Appendix C and are briefly described here.

In the pretest (n=17), the mean score was 4.41 with a standard deviation of 1.5834 and a range of 6. In the posttest 1, the mean score was 7.41 with a standard deviation of 1.22777 and a range of 4. In the

posttest 2, the mean score was 7.29 with a standard deviation of 1.40378 and a range of 4.

In order to determine if the means of the three tests were significantly different from each other, an analysis of the variance, or ANOVA, test was used. The results were presented in Table 13 of Appendix C and are briefly described here. This method yielded an F statistic which was accompanied by a probability value that the means of the groups were different. A repeated measure was used as the test statistic since the replicate observations must be accounted for in the analysis. The results were examined for a significant difference at the .05 level with 2 degrees of freedom. The F test which was applied to the ten knowledge questions in the pretest, posttest 1, and posttest 2 yielded a significant difference between the means of the three groups ($F = 24.60$, p .0001).

Second Research Question

The second research question investigated if viewing the video, Choosing Cambodian Foods Wisely, would increase the Cambodian refugees' positive attitudes about the nutritional value of iron, calcium, cholesterol, sugar, and salt. There were eight questions which applied to these five areas of nutritional concern. Each favorable response was

weighted as one point; each unfavorable or no opinion response received no points.

The results of the descriptive statistics were presented in Tables 10 through 12 of Appendix C and are briefly described here. In the pretest (n=17), the mean score was 4.35 with a standard deviation of 1.618 and a range of 7. In posttest 1, the mean score was 5.88 with a standard deviation of 1.364 and a range of 4. In posttest 2, the mean score was 6.23 with a standard deviation of 1.20 and a range of 4.

Again, in order to determine if the means of the three tests were significantly different from each other, a repeated measure ANOVA test was used. The F statistic results were examined for a significant difference at the .05 level. The results were presented in Table 14 of Appendix C and are briefly described here. The F test which was applied to the eight attitude questions in the pretest, posttest 1, and posttest 2 yielded a significant difference between the means of the three groups (F= 8.63, p .0006).

Third and Fourth Research Questions

The third and fourth research questions investigated if viewing the video, Choosing Cambodian Foods Wisely, would postively affect the Cambodian refugees' food preparation and eating behaviors in the utilization of foods containing iron, calcium, cholesterol, sugar, and salt.

There were sixteen questions which applied to these five areas of nutritional concern. In the pretest and posttest 2 there were six levels of response, each weighted as a proportion of one point. However, since there were only three categories of each response in posttest 1, each response predicting a favorable change in behavior received one point; each response predicting an unfavorable change or no change in behavior received no points.

The results of the descriptive statistics were presented in Tables 10 through 12 of Appendix C and are briefly described here. In the pretest (n=17), the mean score was 9.04 with a standard deviation of 1.07 and a range of 5.1. In posttest 1, the mean score was 7.35 with a standard deviation of 2.50 and a range of 8.0. In the posttest 2, the mean score was 10.31 with a standard deviation of 1.33 and a range of 4.5.

In order to determine if the means of the three tests were significantly different from each other, a repeated measure ANOVA test was used. The F statistic results were examined for a significant difference at the .05 level. The results were presented in Table 15 of Appendix C and are briefly described here. The F test which was applied to the sixteen behavior questions in the pretest, posttest 1, and posttest 2 yielded a significant difference between the means of the three groups ($F = 12.24$, p .0001).

Fifth Research Question

The fifth research question was concerned with the cultural appropriateness of the video educational tool. Twenty subjects watched the video and answered the seven questions pertaining to it. The results of the first culture variable, "How much of the information on the video was new to you?", are briefly described here and presented in Table 17. of Appendix C. Thirty percent of the subjects reported that most of the information presented in the video was new; sixty percent reported that some of the information was new; ten percent reported that none of the information was new.

The results of the second culture variable, "How much of the video will you use?", are briefly described here and presented in Table 18 of Appendix C. Fifty percent of the subjects reported that most of the information would be useful; forty-five percent reported that some of the information would be useful; five percent reported that none of the information would be useful.

The results of the third culture variable, "How much of the video was easy to understand?", are briefly described here and presented in Table 19 of Appendix C. Eighty percent of the subjects reported that most of the information was easy to understand; twenty percent of the subjects reported that some of the information was easy to understand; no subjects reported that none of the information was easy to understand.

The results of the fourth culture variable, "How much of the video was appropriate to your Cambodian culture?", are briefly described here and presented in Table 20 of Appendix C. Fifty-five percent of the subjects reported that most of the video was appropriate; forty-five percent of the subjects reported that some of the video was appropriate; no subjects reported that none of the video was appropriate.

The results of the fifth culture variable, "How much of the video was hard to understand?", are briefly described here and presented in Table 21 of Appendix C. This question was scored in reverse as follows: one, none of it; two, some of it; three, most of it. Thirty-five percent of the subjects reported that none of the information was hard to understand; forty-five percent of the subjects reported that some of the information was hard to understand; twenty percent of the subjects reported that most of the information was hard to understand.

The results of the sixth culture variable, "How much of the video was true about your Cambodian culture?", are briefly described here and presented in Table 22 of Appendix C. Fifty-five percent of the subjects reported that most of the video was appropriate; forty-five percent of the subjects reported that some of the video was appropriate; no subjects reported that none of the video was appropriate.

The results of the seventh culture variable, "Would you recommend the video to family and friends?", are briefly described here and

presented in Table 23 of Appendix C. This question was scored as follows: one, no; two yes; three, maybe. Ninety percent of the subjects reported that they would recommend the video; ten percent of the subjects reported that they might; none reported that they would not recommend the video.

Discussion of the Results

In order to summarize the results of this study, it is desirable to review the basic purpose posed by the study in the introduction, "to test the nutritional education tool, Choosing Cambodian Foods Wisely, to determine if a sample of Cambodian refugees respond to the tool as both culturally appropriate and nutritionally educational. Five research questions were investigated in an attempt to answer the basic questions posed by the study. The author created the test items for a quasi-experimental design. These were presented in the form of a pretest, intervention, posttest 1, and posttest 2. The purpose of the evaluation design was to provide a valid and reliable measurement of change in specific knowledge, attitude, and behavior toward areas of nutritional concern in the diet of Cambodian refugees.

The first research question investigated the differences in the subjects' scores in the knowledge component of the three tests. The results of an item analysis supported the hypothesis that the content for the knowledge component of the test provided meaningful and accur-

ate information for the knowledge variable. The analysis of the data, illustrated in Table 13 of Appendix C, revealed a significant difference between the means of the test scores. This supported that the nutritional education tool was effective in increasing the knowledge of the Cambodian refugees in regard to iron, calcium, cholesterol, sugar, and salt. The results of the posttest 2 further supported that this increase in knowledge was sustained over a one month period.

The second research question investigated the differences in the subjects' scores in the attitude component of the three tests. The analysis of the data, illustrated in Table 14 of Appendix C, revealed a significant difference between the means of the test scores. This supported that the nutritional education tool was effective in increasing positive attitudes of the Cambodian refugees in regard to iron, calcium, cholesterol, sugar, and salt. The results of the posttest 2 further supported that this increase in attitude was sustained over a one month period.

The third and fourth research questions investigated the differences in the subjects' scores in the behavior component of the three tests. The analysis of the data, illustrated in Table 15 of Appendix C, revealed a significant difference between the means of the test scores. This supported that the nutritional education tool was effective in increasing positive nutritional behaviors of the Cambodian refugees in regard to iron, calcium, cholesterol, sugar, and salt. The results of

the posttest 2 further supported that this increase in positive food preparation and eating behaviors was sustained over a one month period.

The fifth research question investigated if the Cambodian refugees viewed the nutritional education tool, Choosing Cambodian Foods Wisely, as culturally appropriate. When examining the total scores for this portion of test instrument, more than 90% of the subjects reported that the video provided at least some culturally appropriate, accurate, new, and useful nutritional information (see Table 24 of Appendix C). In addition, 90% stated they would positively recommend the video to other Cambodians (see Table 23 of Appendix C).

In examining the total scores for knowledge, attitude, and behavior as a measure of the nutritional education, the means of the posttest 1 and posttest 2 groups were significantly different from the pretest group ($F = 17.58$, p .0001). These results are presented in Table 16 of Appendix C. These results supported that the intervention was successful in providing nutritional education to this Cambodian refugee sample.

The study results agreed with those reported by Loring and Garcia (1977) in their evaluation of a film on breast self-examination translated in Spanish. The film minimized knowledge content and stressed positive attitudes. Their study consisted of a pretest prior to the screening of the film. They evaluated reported behavior of breast self-

examination by contacting participants in six weeks. They found an increase of 30% to 76% in reported behavior of self-examination and concluded that the film was a highly successful approach to increasing breast self-examination in the Spanish-speaking population.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR EDUCATION AND FUTURE RESEARCH

Summary

An impact evaluation was selected for this study since this level of evaluation was recommended by Green et al. (1980) as most needed in the development of health education. Since the specific purpose of this study as stated in the Introduction was "to test the nutritional education tool, Choosing Cambodian Foods Wisely, to determine if a sample of Cambodian refugees respond to the tool as both culturally appropriate and nutritionally educational," five research questions were investigated. These questions were specifically concerned with change in knowledge, attitudes, and behavior regarding nutritional areas of concern and the cultural sensitivity of the educational tool.

The evaluation tests were designed to measure the impact of the program on the five areas of concern (calcium, iron, cholesterol, sugar, and salt) which were the focus of the nutritional health intervention. The test items were designed to measure change in knowledge, attitude, and behavior regarding these five areas. Some test items were also constructed to measure the cultural appropriateness of the health education intervention.

A quasi-experimental approach was selected in which each subject acted as his/her own control in the application of the nutrition education tool. The design consisting of a pretest, intervention, posttest 1, and posttest 2 was selected. There was no time lapse between the pretest, intervention, and posttest 1; however, there was a lapse of one month between these and posttest 2 which was designed to measure sustained change.

A cluster sample of 20 Cambodian women living in Lynn, Massachusetts was selected for the study out of the Northwestern area of the state. However, due to attrition, only seventeen cases were used in the final analysis of the data. Since a quasi-experimental design was chosen, quantitative rather than qualitative data was appropriate (Bates & Winder, 1984). Quantitative data was preferred also to maintain validity and reliability as well as future replication. The difficulties associated with a language barrier made qualitative data cumbersome and potentially inaccurate.

The tests were constructed using simple language. Each instrument was designed to minimize the effects of acquiescent response set (ARS), a tendency to agree with statements regardless of their content, by balancing satisfaction scales with both favorably and unfavorably worded items (Ware, 1978). Yes or no answers were also minimized because the Cambodian refugee often answers affirmatively due to a desire to please (Chng, 1984).

The pretest consisted of 34 closed answer questions divided into 10 questions on knowledge, 8 questions on attitude, and 16 questions on behavior. Posttest 1 consisted of 42 closed answer questions divided into 10 questions on knowledge, 8 questions on attitude, 16 questions on predicted behavior and 8 on cultural appropriateness. Posttest 2 consisted of 34 questions and was identical to the pretest.

The knowledge questions consisted of multiple-choice items. The attitude questions were in a 3-point scale consisting of agree, disagree, and no opinion. These questions were balanced by having both favorable and unfavorable items. The behavior questions for the pretest and posttest 2 were in a 6-point scale consisting of degrees of behavior, such as once a week, twice a week, three times a week, etc. However, posttest 1 was in a 3-point scale in the format of the same as, more frequently, and less frequently.

Accuracy in translation was achieved through the use of reverse interpretation as described by Muldoon (1986). This method was a quality control procedure in which the translated message is translated back into English by a second trusted translator to check the integrity of the intended message.

The administration of the tests consisted of reading the translated test aloud to the participants even though some stated they were able

to read Khmer. The pretest, intervention, and posttest 1 were given in one sitting; posttest 2 was administered one month later.

The analysis of the data revealed significant differences between the means of the test scores for the areas of knowledge, attitude, and behavior. When examining the total scores for knowledge, attitude, and behavior as a measure of the nutritional education, the means of the posttest 1 and posttest 2 groups were significantly different from the pretest group ($F = 17.58$, p. 0001). These results were presented in Table 16 of Appendix C. In addition, over 90% percent of the subjects reported that the nutritional education tool was culturally appropriate as measured by the test scores (see Table 22 of Appendix C).

These results provided evidence that the intervention was successful in providing nutritional education to this Cambodian refugee sample. The results agreed with those reported by Loring and Garcia (1977) in their study of the use of a film in the Spanish language on breast self-examination. They found a significant increase in reported behavior of self-examination and concluded that the film was a highly successful approach to provide health information to a Spanish speaking population.

Conclusions

Thus, from these results it is possible to conclude that the health education tool, Choosing Cambodian Foods Wisely, was an effective and appropriate nutritional health intervention for Cambodian refugees and that the evaluation method selected was successful in reaching these conclusions.

There are several reasons to explain these conclusions. First, the educational video tool was well designed to provide a valid program to evaluate. The Khmer language was clear and accurate and was achieved through the process of reverse translation. The visual cues were appropriate to the culture and reinforced the audio component. Since the video was only twelve minutes in the Khmer language, it was able to sustain the viewers' attention. Music and other audio background enhanced the overall production.

Second, the video promoted attitudes and behaviors that were supportive of the Cambodian refugees' culture within their new American environment. The information presented was not in opposition to known Cambodian values and beliefs and was cast entirely with Cambodian refugees.

Third, the video did not try to completely eradicate certain nutritional behaviors. The goal of the educational tool was rather to decrease or moderate unhealthy nutritional behaviors.

Fourth, the test instruments were constructed to measure the concepts- the five areas of concern- presented in the video education tool. The questions were written in a nonjudgmental and nonthreatening tone. The instructions and test items were presented to the subjects in both the written and oral Khmer language.

Fifth, the use of quantitative data provided an analysis of the objectives. The knowledge questions were written in a multiple-choice design which allowed for discriminate and ANOVA analyses. The attitude and behavior questions were written in scales which permitted ANOVA analysis. The cultural appropriateness questions were written to provide a quantitative measure of acceptability.

Finally, the probability sample and quasi-experimental study design allowed the results to be generalized to the Cambodian cluster population in Massachusetts. To the extent that this cluster is reflective of the total population, these results can probably be generalized to the Cambodian population in Massachusetts.

Recommendations for Education and Future Research

As we conclude the twentieth century, providing health information to refugee populations will continue to be a challenge to health education professionals. Designing interventions to meet the cultural health needs of immigrant groups will become an increasing priority as groups of refugees continue to emigrate to the United States. Due to language and literacy barriers, evaluating the impact of health education interventions will be essential for positive outcomes.

The results of this study in the evaluation of a nutritional video health education intervention provided support that a culturally appropriate media presentation is effective in positively influencing knowledge, attitudes, and behaviors regarding nutrition. In view of these results, it is possible to identify implications for both the fields of education and research.

Professors of public health education should teach media strategies in their curricula. The ability to create health intervention tools is important to the ultimate goal of achieving health education. Furthermore, culturally appropriate media is most needed since health education campaigns are primarily addressed to English speaking populations. Programs in health education need to address issues of cultural appropriateness in the creation of the media in order for the inter-

vention strategies to be effective; simple translation alone is least effective.

Professors of public health education should also emphasize the importance of evaluation as a measure of the effectiveness of health education programs. In these times of cost containment, it is essential to determine what programs can be most effective for the greatest number of people. The use of videotaped teaching programs is a low cost, convenient strategy to provide consistent and culturally appropriate health education to refugee populations. However, the evaluation of such programs is frequently overlooked.

Future research should focus not only on the creation of media health interventions, but also their evaluation. All too frequently, most of the grant resources are expended in the stages of assessment, planning, and intervention. When the time comes for evaluation, little financial support remains which often limits the level of evaluation achieved to process. It is therefore essential that planning for evaluation begin in the early stages of the program.

This study provided support for a national publication of the videotape, Choosing Cambodian Foods Wisely. The instrument developed to evaluate the nutritional video could be easily replicated making additional evaluation feasible. Ideally, a case-control intervention study would be the statistically preferred design. However, with

limited availability of subjects and resources, the cluster sample and quasi-experimental study design used in this study can be repeated with confidence. Results from several cluster studies could be pooled to further increase statistical significance.

APPENDIX A

PAMPHLET AND VIDEO SCRIPT

ជ្រើសរើសម្ហូបអាហារខ្មែរ ដោយប្រយ័ត្នប្រយែង

សៀវភៅស្តើងនេះបោះផ្សាយដោយ
ការិយាល័យកម្មសិក្សាសុខភាពភូមិភាគ
ដាយយ៉ូស្សើវ៉ាឌ្សេយ នៃអេសធីស៊ីស៊ី
និង
មហាសាលវិទ្យាល័យម៉ាសាឈូសេត
ផ្នែកសុខភាពសាធារណៈ
១៩៨៨

Pamphlet in Khmer

សំណើរអោយញុំាម្ហូបអាហារ

ជាតិអំបិល៖
- ជាក់ទឹកស្ករតិច
- ប្រញាក់គ្រឿងម្ហូប
- ប្រើគ្រឿងរុក្ខជាតិ និងគ្រឿងហិល ដូចជា ខ្ទឹម ស្លឹកម្រេស ការី ខ្ញីជាដើម

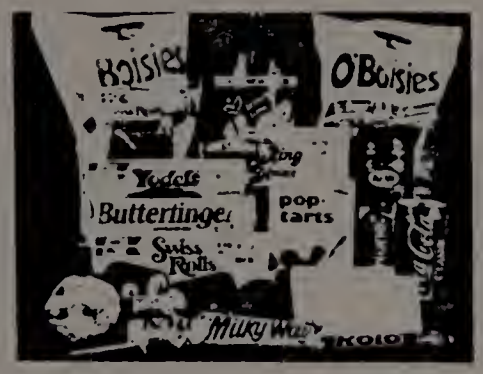
ជាតិកាល់ស៊ីយ៉ូម៖
- កុនក្មេងញុំាទឹកដោះគោ
- បើចូលចិត្ត ប្រើទឹកដោះគោដែនឆ្ងៃទឹកសណ្តែកសៀង

អាហារក្រៅពេល៖
- ចៀសវាងអាហារណាប្រៃឬផ្អែមខ្លាំង
- បរិភោគផ្លែឈើស្រស់ជាជាងជាតិផ្អែមដុចនំស្ករ
- ញុំាទឹកផ្លែឈើជាជាងញុំាទឹកក្រូច

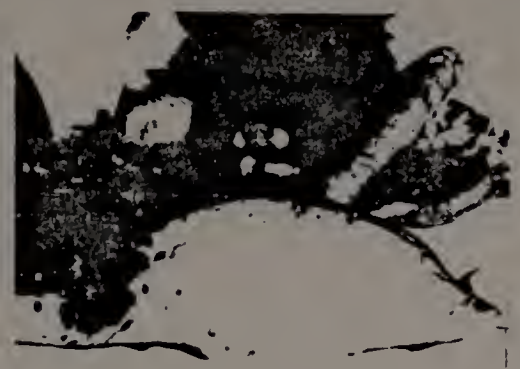
ជាតិអាយរ៉ុន៖
- បរិភោគម្ហូបជាមួយ ក្រូចឆ្មា ឬក្រូចលឿង
- បរិភោគសាច់ក្រហម និង ស្លឹកបន្លែ

ម្ហូបអាហារស្រស់៖
- ប្រើម្ហូបស្រស់ កុំប្រើ ម្ហូបកំប៉ុង
- កុំដាំស្ងួបន្លែឆ្អិនជ្រុល

ចៀសវាងម្ហូបអាហារប្រឡាក់ស្រាប់



ម្ហូបអាហារទាំងនេះមានជាតិស្ករ និង អំបិល ច្រើន, ហើយតម្លៃដើរជាតិតិចៗ



ម្ហូបអាហារ ស្រស់ និង កក
- រស់ជាតិគ្រាន់បើ
- តម្លៃថោក
- ជាតិវីតាមីនច្រើន
- ជាតិស្ករ និង អំបិលតិច

ជាតិកាល់ស្យ៊ូម-ធ្វើអោយរឹងនិងធ្មេញមាំ

បរិភោគម្ហូបសំបូណ៌ជាតិកាល់ស្យ៊ូម
រាល់ថ្ងៃគឺសំខាន់, ជាពិសេសសំរាប់
ក្មេងតូចៗនិងស្ត្រីផ្ទៃពោះ

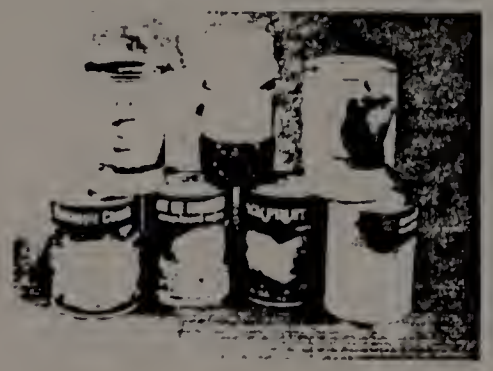
ស្ត្រីមានផ្ទៃពោះ, ស្ត្រីបំបៅកូន និង
ក្មេងក្រោមអាយុ៥ ឆ្នាំ អាចទទួលម្ហូប
អាហារទាំងនេះៗតាក់ទងក្រសួងវិក
(WIC)ទូរស័ព្ទ ៩៨៨-៣៩៨១

ជាតិអាយរ៉ុន-ល្អសំរាប់ឈាម ដែលធ្វើ
អោយអ្នកមានកម្លាំងមាំមាំ

បរិភោគ សាច់ក្រហម, ស្លឹកបន្លែ, ធញ្ញជាតិ ឬ
សេរីអាលសំបូណ៌ជាតិអាយរ៉ុន

បរិភោគផ្លែឈើស្រស់ពេលទទួលទានអាហារ
ជួយអោយជាតិអាយរ៉ុនចូលក្នុងខ្លួនអ្នក

ជាតិស្ករ-ជាតិស្ករច្រើនអាចនាំអោយ
មានបញ្ហាសុខភាព ឆាប់ខូចធ្មេញ, ពោត
ទឹកនោមផ្អែម



ចៀសវាងកុំអោយកូនបៅដបទឹកដោះ
ពេលគេង។ របៀបនេះនឹងនាំអោយឆាប់
ខូចធ្មេញ។

ជាតិអំបិល-ប៊ុចេង(ការ៉ូ)និងទឹកស្ងួវមានជាតិ
អំបិលច្រើន។ អំបិលច្រើនមិនល្អទេចំពោះសុខ
ភាពអ្នក។ ប្រើអំបិលអោយល្អម ។

ជាតិអំបិលច្រើនតាំអោយមាន:

- ដម្ងិចឿងឈាម
- ដម្ងិតម្រងមូត្រ
- ដម្ងិតាំងបេះដូង

ដម្ងិទាំងនេះអាចអោយអ្នកអាយុខ្លី

Video Script in English

CHOOSING CAMBODIAN FOODS WISELY
Copyright, 1989

(fade-up theme music over blue background)

(Title: "Choosing Cambodian Foods Wisely")
(Photo: Cambodian Woman food shopping)
(Credit: Sponsored by a Grant through the Pioneer Valley Health Education Center at STCC, Springfield, Massachusetts)

(fade-out theme, fade-under traditional music)

Our Cambodian traditions are defined by: our unique Art....., Music....., Religion....., Fashion....., and Food.
As new Cambodian Americans, we want to retain our traditions while adapting to our new American culture.
One of our greatest challenges is in adapting our fine Cambodian cuisine to our new land.
Our diet has always been rich in vitamins and nutrients.
And fortunately, we have few nutritional concerns.
For the most part our children grow up to be healthy, vibrant, and active.
In looking closely at our nutritional needs, we have only 5 potential areas of concern.

(fade-out traditional music)

CALCIUM

The first is CALCIUM ...
Calcium is important for the young as well as the old.
For the old, calcium helps to prevent the bones from becoming brittle and weak.
Eating the soft bones of small fish such as sardines provides a good source of calcium.
Calcium is also important to childbearing women.
A deficiency of calcium during pregnacy may cause the teeth to become soft leading to decay.
Soy milk products are an excellent source of calcium and a good substitute for women who have difficulty digesting cow's milk.
Calcium is an essential ingredient for the young.
It helps their small bones to grow strong and straight.
It makes their teeth strong and healthy.
Cow's milk, cheese, and other dairy products are excellent sources of calcium.

CALCIUM (cont.)

It is important to introduce infants and children to milk at an early age so that their young bodies will be able to easily digest it.
However, constant sucking on milk bottles
or other bottles containing fruit juice or sugary drinks
will cause dental decay and ultimately tooth loss.
Avoid giving babies bottles to suck on all through the night.

IRON

The second concern is in eating enough foods which are good sources of IRON, an essential nutrient for all ages.
Iron gives strength to the blood which gives us
the energy to work and play.
Rice is a major part of our Cambodian diet;
but unfortunately, it does not contain iron.
Some rices are fortified with iron but our Cambodian rice is not.
It is wise to combine rice with foods high in iron such as red meats, fish, as well as leafy green vegetables.
Eating fresh fruits as part of a meal will help your body to more easily absorb iron.
Canned fruits are more expensive, have less vitamins, and contain unnessary additives like sugar and salt.

SALT

SALT is our third area of concern...
Too much salt can cause high blood pressure which may result in kidney disease, heart attack, or stroke.
All of these conditions can shorten your life.

Canned foods in general contain large amounts of salt to preserve freshness.
Too much salt may also be added as flavoring for cooking.
Salt, also called sodium, is the main ingrediant in MSG , "monosodium glutemate."
The main ingredients in oyster sauce are salt and MSG.
There are also large amounts of salt and MSG in soy sauce.
It is not necessary to completely eliminate these seasonings from our diet, but it is wise to use them moderately.
Other herbs such as pepper, curry, and garlic may be used as substitutes for flavor.
Sauces might also be diluted with water or food might be marinated before cooking to enhance flavoring and reduce salt consumption.
Salt is also a concern for children.
American "junk" food contains high amounts of salt as well as sugar.

SUGAR

SUGARy foods are our fourth concern because they have
little nutritive value.
They temporarily satisfy your hunger
giving only a quick burst of energy.
Our traditional Cambodian sweets are a poor subsitute for American "junk" foods as they have large amounts of salt and sugar.
Fresh fruits are an excellent choice for snacks
and an additional benefit is that they will not cause tooth decay like candy, cookies, and other sugary snacks.

CHOLESTEROL

Our final area of concern is CHOLESTEROL.
Too much cholesterol can cause fat deposits in blood vessels which may lead to high blood pressure, heart disease and stroke.
Eggs have large amounts of cholesterol.
So it is important to limit eggs in cooking, meals, and snacks to 3 per week.

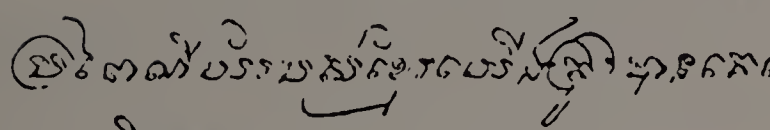
(Fade-Under Theme)

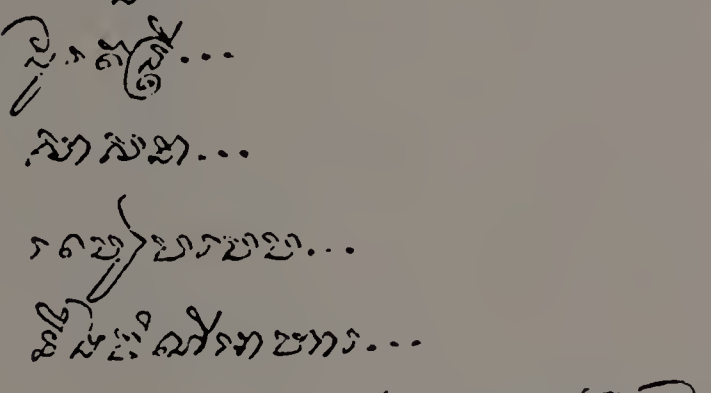
So, be a wise shopper!
Remember that eating the right foods is essential to good health.
Always include calcium rich foods, ...3 servings a day for adults and 4 servings a day for children and women who are pregnant or nursing.
Eat at least 2 servings per day of iron rich foods.
Include several portions of fresh fruits and vegetables each day.
Use salt sparingly!
Limit sugary snacks,
selecting fresh fruits whenever possible.
Limit eggs to 3 per week.
And enjoy our great tasting traditional foods which will always be an important part of our unique Cambodian culture.

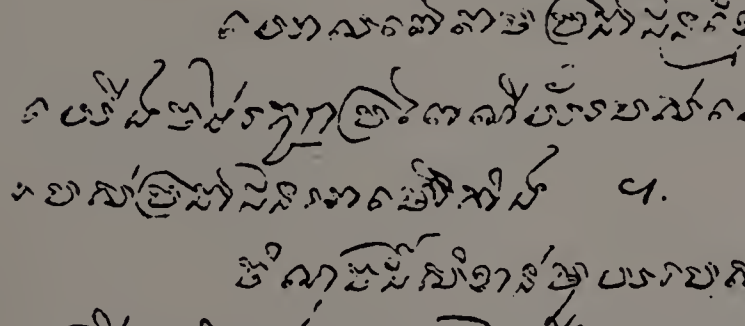
(Fade-Up Theme)

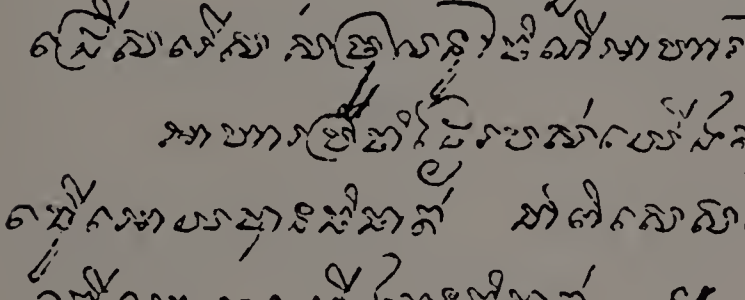
(Credit: Photography and Script by Barbara Poremba, R.N.C., M.S., M.P.H.,
Audio and Video by Richard Walsh, M.Ed.)
(Credit: Grant Project Directed by Alvin Winder, Ph.D, M.P.H.
University of Massachusetts, Division of Public Health,
Amherst, Ma.)
(Credit: Special Thanks To: Bou Family, Vouch Family, Malis Oeur,
Sam-Oeum May, M.S., Hoeun Heang, Lucy Nguyen, Ph.D.,
Royal Crane Oriental Food Market, Amherst, Ma.
Phnom Penh Restaurant, Revere, Ma.)

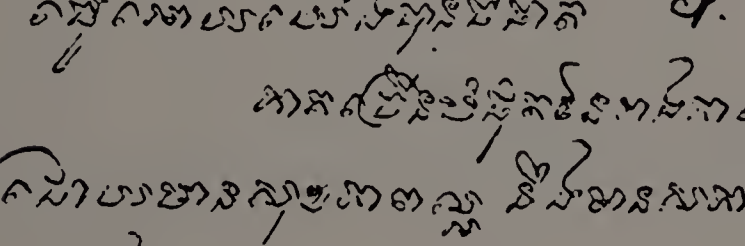
(Dissolve to Blue Background)
(Fade-Out Music)

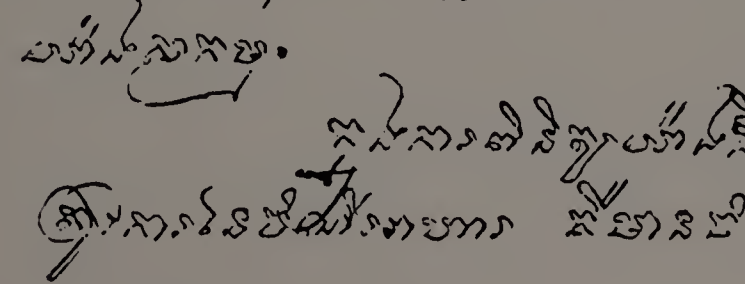












ដើម្បីកំណត់ត្រាប្រវត្តិការងារសំខាន់ៗនៅក្នុងក្រសួងសុខាភិបាល.
ដែលមានសារៈសំខាន់ ដើម្បីកំណត់ត្រាប្រវត្តិការងារសំខាន់ៗនៅក្នុងក្រសួងសុខាភិបាល
ដែលមានសារៈសំខាន់ដែរ។

ការងារនេះត្រូវបានធ្វើឡើងដោយមានការសហការពីមន្ត្រីជាច្រើនរូប
ដែលបានចូលរួមក្នុងការសរសេរ (អាចមានវិធីសាស្ត្រមួយចំនួនដែលមិនត្រូវ)
ដើម្បីឱ្យការងារនេះមានភាពល្អប្រសើរ ដើម្បីកំណត់ត្រាប្រវត្តិការងារសំខាន់ៗ
ដែលបានធ្វើឡើងដោយក្រសួងសុខាភិបាល។

ការងារនេះនឹងត្រូវបានបន្តធ្វើឡើងដោយមានការសហការពីមន្ត្រីជាច្រើនរូប។

ការងារបានចាប់ផ្តើមកំណត់ត្រាប្រវត្តិការងារសំខាន់ៗនៅក្នុងក្រសួងសុខាភិបាល
ដោយបានប្រមូលព័ត៌មានពីមន្ត្រីជាច្រើនរូប។

ដើម្បីធានាបាននូវភាពត្រឹមត្រូវនៃព័ត៌មានដែលបានប្រមូលបាន
ក្រុមការងារបានធ្វើការសម្ភាសន៍ជាមួយនឹងមន្ត្រីជាច្រើនរូប ដែលបានចូលរួម
ក្នុងការងារនេះ ដើម្បីធានាបាននូវភាពត្រឹមត្រូវនៃព័ត៌មានដែលបានប្រមូល។

ដើម្បីកំណត់ត្រាប្រវត្តិការងារសំខាន់ៗនៅក្នុងក្រសួងសុខាភិបាល
ក្រុមការងារបានធ្វើការសម្ភាសន៍ជាមួយនឹងមន្ត្រីជាច្រើនរូប ដែលបានចូលរួម
ក្នុងការងារនេះ ដើម្បីធានាបាននូវភាពត្រឹមត្រូវនៃព័ត៌មានដែលបានប្រមូល។

* អាចមានបញ្ហាដែលមិនត្រូវបានលើកឡើងក្នុងការសម្ភាសន៍ ដែលអាចនឹងមានសារៈសំខាន់
ដែលត្រូវបានលើកឡើង។

* អាចមានព័ត៌មានដែលមិនត្រឹមត្រូវ ដែលបានផ្តល់ជូនដោយមន្ត្រីជាច្រើនរូប។

ដើម្បីធានាបាននូវភាពត្រឹមត្រូវនៃព័ត៌មាន ក្រុមការងារបានធ្វើការសម្ភាសន៍
ជាមួយនឹងមន្ត្រីជាច្រើនរូប ដែលបានចូលរួមក្នុងការងារនេះ។

* ការសម្ភាសន៍មួយចំនួន ធ្វើឡើងតាមរយៈទូរស័ព្ទ ដែលធ្វើឱ្យការប្រមូលព័ត៌មាន
មានភាពលំបាក ដោយសារតែមិនអាចមើលឃើញមុខមាត់ និងកាយវិការរបស់អ្នកដែលត្រូវ
ការសម្ភាសន៍ ដែលធ្វើឱ្យការប្រមូលព័ត៌មានមានភាពលំបាក។

ទេ: ដាលហាំងណាអ័ណោ ហ ការសេរចរបានក្បួនច្បាប់ដូចគ្នាដែរ។

ប្រសិនបើនៃដើមកន្សែងមានពណ៌ផ្សេងពីគ្នាពីរឡើងទៅ ដាក់ឲ្យស្មើគ្នាតាមជួរឈរ
រាងចតុកោណកែងដែលមានជ្រុងកាត់ស្មើគ្នា ទុកជាដុំ ហ្វឹកហាត់ឲ្យចេះ
ដើរដូចការបង្ហាត់ក្មេងឆាប់ចាប់ដាំទឹកដុំ ។

* ចំពោះមេឡូ ដើរសាកល្បងក្បាច់ដូចគ្នាដែរ។

ចំពោះដើមកន្សែងមានពណ៌ផ្សេងពីគ្នាពីរឡើងទៅ ដាក់ឲ្យស្មើគ្នាតាមជួរឈរ
(ឬជួរដេក) ដូចគ្នាដែរ ដើរសាកល្បងក្បាច់ដូចគ្នាដែរ។ ដើម្បីកុំឲ្យច្រឡំ
ពណ៌ដើមកន្សែង ត្រូវដាក់ដើមកន្សែងពណ៌ដូចគ្នាឲ្យនៅជាប់គ្នា ដើម្បីងាយស្រួល
ដើរ។

ដើមកន្សែងដែលមានពណ៌ដូចគ្នាដាក់ជាប់គ្នាតាមជួរឈរ (ឬជួរដេក) ដើរ
ដូចការដើរដើមកន្សែងតែមួយ។

ដើមកន្សែងដែលមានពណ៌ដូចគ្នាដាក់ជាប់គ្នាតាមជួរឈរ (ឬជួរដេក) ដើរ
ដូចការដើរដើមកន្សែងតែមួយ ដើម្បីងាយស្រួលដើរ ដាក់ដើមកន្សែងដែលមានពណ៌
ដូចគ្នាឲ្យនៅជាប់គ្នាតាមជួរឈរ (ឬជួរដេក) ដើរដូចការដើរដើមកន្សែងតែមួយ។

ដើមកន្សែងដែលមានពណ៌ដូចគ្នាដាក់ជាប់គ្នាតាមជួរឈរ (ឬជួរដេក) ដើរ
ដូចការដើរដើមកន្សែងតែមួយ ដើម្បីងាយស្រួលដើរ ដាក់ដើមកន្សែងដែលមានពណ៌
ដូចគ្នាឲ្យនៅជាប់គ្នាតាមជួរឈរ (ឬជួរដេក) ដើរដូចការដើរដើមកន្សែងតែមួយ។

ពេលដែលអ្នកចង់ដឹង: ការប្រើប្រាស់ពាក្យបញ្ជាដែលមានប្រយោជន៍ដែលអ្នកអាចប្រើបានគឺ
ពាក្យបញ្ជាដែលអនុញ្ញាតឱ្យអ្នកដឹងថាតើមានសារថ្មីឬអត់ ដែលបង្ហាញសារដែលបានផ្ញើ
ទៅអ្នកនៅពេលដែលអ្នកចង់ដឹង ដែលអនុញ្ញាតឱ្យអ្នកលុបសារដែលបានផ្ញើ
ដោយមិនចាំបាច់ឱ្យអ្នកប្រើប្រាស់ផ្សេងទៀតយល់ព្រម។

ក្រៅពីពាក្យបញ្ជាខាងលើនេះ មានពាក្យបញ្ជាមួយចំនួនទៀត ដែលអ្នក
ប្រហែលជាចង់ដឹងថាតើមានឬអត់។

ការប្រើប្រាស់ពាក្យបញ្ជាទាំងនេះគឺដូចគ្នានឹងការប្រើប្រាស់ពាក្យបញ្ជាផ្សេងទៀត
យ៉ាងដែរ ដែលអ្នកត្រូវការគ្រាន់តែវាយពាក្យបញ្ជា ហើយចុច Enter។

* ដើម្បីអាចប្រើពាក្យបញ្ជាមួយចំនួនបាន អ្នកត្រូវតែមានសិទ្ធិជាអ្នកគ្រប់គ្រង
ប្រព័ន្ធដែលអនុញ្ញាតឱ្យមានការប្រើប្រាស់ពាក្យបញ្ជាទាំងនេះ។

* ពាក្យបញ្ជាមួយចំនួនអាចមានជម្រើសមួយចំនួន "MSG" ដែលអនុញ្ញាតឱ្យអ្នកប្រើប្រាស់ជ្រើសរើស
ពីរបៀបដែលពួកគេចង់ឱ្យសារត្រូវបានបង្ហាញ ដែលជាធម្មតាមានជម្រើសបីយ៉ាង
ផ្សេងគ្នា ដែលមានដូចជា ដើម្បីមានន័យថាមិនមានសារ (ស្ងាត់ស្ងៀម)

* ពាក្យបញ្ជាខ្លះអាចមានជម្រើសមួយទៀតដែលអនុញ្ញាតឱ្យអ្នកប្រើប្រាស់ជ្រើសរើស "MSG"
ដែលមានន័យថាមិនមានសារ។

ការប្រើប្រាស់ពាក្យបញ្ជាទាំងនេះត្រូវបានពន្យល់ដោយលម្អិតនៅក្នុងជំពូកបន្ទាប់
ហើយអ្នកមិនចាំបាច់ចាំពាក្យបញ្ជាទាំងនេះទេ ព្រោះវានឹងត្រូវបានរៀបរាប់
ដោយលម្អិតនៅទីនោះ។ ដោយសារតែវាជាការប្រើប្រាស់ជាញឹកញាប់ ដូច្នេះវាជាការល្អ
ដែលត្រូវដឹងនូវពាក្យបញ្ជាមួយចំនួនដែលមានប្រយោជន៍ ដែលខ្ញុំនឹងរៀបរាប់ខាងក្រោម (ស)។

* ពាក្យបញ្ជាសាកល្បងសម្រាប់ប្រើប្រាស់ដោយមិនចាំបាច់ចាំពាក្យបញ្ជាទាំងនេះ។ ដូចជាពាក្យបញ្ជាសាកល្បង
ដែលអនុញ្ញាតឱ្យអ្នកប្រើប្រាស់ដឹងថាតើមានសារថ្មីឬអត់ ដែលបង្ហាញសារដែលបានផ្ញើ
ទៅអ្នកនៅពេលដែលអ្នកចង់ដឹង។

ចំណាំ: ការប្រើប្រាស់ទាំងនេះ ដើម្បីអាចប្រើពាក្យបញ្ជាទាំងនេះបានត្រឹមត្រូវ ពេលខ្លះ
ចាំបាច់ត្រូវបានអនុញ្ញាតឱ្យប្រើពាក្យបញ្ជា។ ទាំងនេះអាចជាពាក្យបញ្ជាដែលអនុញ្ញាតឱ្យអ្នកគ្រប់គ្រង

ដែលមានន័យថា ។

ចំណាំមានការបង្ហាញមេរៀនជាមុនអំពីប្រធានបទដែលត្រូវបង្រៀនដើម្បីឲ្យសិស្សមានការយល់ដឹងជាមុន ។

<u>ការប្រើប្រាស់ពីរឿង</u>៖ ការនិទានរឿងត្រូវតែមានលក្ខណៈសាមញ្ញ ងាយយល់ និងមានការជាប់ទាក់ទងនឹងមេរៀន ។ ការនិទានរឿងត្រូវតែមានការរៀបចំជាមុនដោយគ្រូ ដើម្បីជៀសវាងការភ្លេចភ្លាំង ឬការច្រឡំ ដែលនឹងធ្វើឲ្យសិស្សមិនយកចិត្តទុកដាក់ស្តាប់ ។

ចំពោះការនិទានរឿងដែលមានរូបភាពជាប្រកបនោះ គ្រូត្រូវតែមានការរៀបចំរូបភាពឲ្យបានច្បាស់លាស់ ដើម្បីជៀសវាងការច្រឡំ ដែលនឹងធ្វើឲ្យសិស្សមិនយកចិត្តទុកដាក់ស្តាប់ ។

ដើម្បីឲ្យការនិទានរឿងមានភាពជោគជ័យ គ្រូត្រូវតែមានការរៀបចំសំណួរជាមុន ដែលសំណួរទាំងនោះត្រូវតែមានភាពច្បាស់លាស់ ងាយយល់ និងមានការជាប់ទាក់ទងនឹងរឿងដែលបាននិទាន ដើម្បីជៀសវាងការនិយាយច្រើនដែលមិនចាំបាច់ ដែលនឹងធ្វើឲ្យសិស្សធុញទ្រាន់ ហើយមិនយកចិត្តទុកដាក់ស្តាប់ ។

<u>ការប្រើប្រាស់ល្បែងតួនាទីនិងការដើរតួនាទី</u>៖ ការប្រើប្រាស់ល្បែងតួនាទីត្រូវមានការជាប់ទាក់ទងនឹងមេរៀន ដែលសិស្សត្រូវបានសិក្សា ដើម្បីជៀសវាងការច្រឡំ ដែលនឹងធ្វើឲ្យសិស្សមិនយកចិត្តទុកដាក់ស្តាប់ ។

ការប្រើប្រាស់ល្បែងតួនាទីនិងការដើរតួនាទីត្រូវមានការរៀបចំជាមុន ដើម្បីជៀសវាងការច្រឡំ ដែលនឹងធ្វើឲ្យសិស្សមិនយកចិត្តទុកដាក់ស្តាប់ ។

ក្នុងពេលដែលសិស្សកំពុងតែដើរតួនាទីនោះ គ្រូត្រូវតែមានការយកចិត្តទុកដាក់ស្តាប់ និងសង្កេតមើលសិស្សដែលកំពុងតែដើរតួនាទីនោះ ដើម្បីជៀសវាងការនិយាយច្រើនដែលមិនចាំបាច់ ដែលនឹងធ្វើឲ្យសិស្សធុញទ្រាន់ ហើយមិនយកចិត្តទុកដាក់ស្តាប់ ។

APPENDIX B

INSTRUMENTS

QUESTIONS TO EVALUATE KNOWLEDGE

DIRECTIONS: Please choose the best answer.

1. Which of the following foods is highest in cholesterol?

   1----eggs
   2----milk
   3----rice
   4----fish

2. You need calcium in your diet to:

   1----prevent anemia
   2----keep bones and teeth healthy
   3----build muscles
   4----prevent blindness

3. What food can be used insteazd of milk and still give you the same amount of calciumt?

   1----eggs
   2----whole sardines
   3----red meat
   4----fruit juice

4. Which of the following foods is highest in iron?

   1----red meat
   2----milk
   3----fruits
   4----bread

5. The foods which is highest in salt is

   1----oyster sause
   2----bananas
   3----milk
   4----eggs

6. A diet that is high in cholesterol can cause

1----cancer
2----arthritis
3----ulcers
4----heart attack

7. Since Cambodian rice is not "fortified" this means that it does not contain

1----calcium
2----iron
3----cholesterol
4----sugar

8. The main ingredient in MSG or"monosodium glutemate" is

1----glucose
2----sugar
3----salt
4----pepper

9. American "junk" foods such as candy, cookies and potato chips, contain mostly

1----sugar and salt
2----calcium and cholesterol
3----calcium can iron
4----salt and iron

10. Babies who suck on milk bottles all through the night may develop

1----kidney infections
2----tooth decay
3----rickets
4----skin disease

ឥឡូវនេះ ខ្ញុំនឹងសួរអ្នកអំពីប្រភេទម្ហូបដែលអ្នកចូលចិត្តបរិភោគ។

<u>សម្រាប់ការណែនាំ:</u> សូមជ្រើសយកចម្លើយតែមួយគត់ដែលត្រូវនឹងអ្នកបំផុត។

* 1. តើលោកអ្នកចូលចិត្តបរិភោគម្ហូបប្រភេទណាខ្លាំងជាងគេ? តើម្ហូបណា-មួយណាដែលលោកអ្នកមិនចូលចិត្តបរិភោគបំផុត?

1. _____ គ្មានចម្លើយ
2. _____ មិនច្បាស់ទេ
3. _____ ស្រាយ
4. _____ ផ្សេងៗ

* 2. តើអ្នកគិតថាការណែនាំអាហារូបត្ថម្ភល្អបំផុតសម្រាប់ការបង្កើនសុខភាពគឺជាអ្វី?

1. _____ ការពារការខ្លះឈាមក្រាស
2. _____ ផ្តល់ឈាមដែលមានសុខភាពល្អ
3. _____ ផ្តល់នូវអាហារដែលមានសុវត្ថិភាព
4. _____ ការពារការពុលអាហារ

* 3. តើមានប្រភេទអាហារណាដែលលោកអ្នកមិនចូលចិត្តបរិភោគទេ ដែលលោកអ្នក ចង់ឱ្យយើងលុបចោលពីម្ហូបអាហារដែលយើងផ្តល់ជូនអតិថិជនរបស់យើង?

1. _____ គ្មានចម្លើយ
2. _____ ត្រីសាច់ក្រហម (ដូចជាជ្រូក ឬសាច់ក្រហមផ្សេងទៀត)
3. _____ ស្ករដែលមានពណ៌ក្រហម
4. _____ ម្ទេសដែលឆ្ងាញ់

* 4. តើមានប្រភេទអាហារដែលមានខាងក្រោមនេះ: តើមានអាហារ ប្រភេទណាដែលមានលាយឡំគ្នាច្រើនជាងគេ?

1. _____ ស្ករដែលមានពណ៌ក្រហម
2. _____ ម្ទេសដែរ
3. _____ ដែលឆ្ងាញ់
4. _____ ខ្ញុំមិនដឹង

* 5. ข้อสังเกตการณ์ในสถานที่ท่องเที่ยวแห่งหนึ่งมีดังนี้:

1. _____ ผ้าขาดรุ่งริ่ง.
2. _____ ถนนรก.
3. _____ ที่จอดรถ.
4. _____ ความสะอาด.

* 6. การบริการของร้านอาหารแห่งนี้ในสถานที่ท่องเที่ยว ควรจะปรับปรุงในเรื่อง:

1. _____ ความสะอาด
2. _____ ความรวดเร็วในการบริการ
3. _____ อาหารไม่อร่อย
4. _____ ความสะอาด

* 7. ข้าพเจ้าคิดว่าการมีร้านขายของที่ระลึกในสถานที่ท่องเที่ยวแห่งนี้ ๆ.

1. _____ ทำให้เกิดความสะดวก
2. _____ ทำให้เกิดความ
3. _____ ทำให้เสียเวลา
4. _____ ทำให้รก.

* 8. ถ้าเมื่อคุณไปรับประทานอาหารแล้วมีข้อความว่าไม่ใส่ M.S.G. (ผงชูรส) คุณจะคิดว่า

1. _____ ทำให้เสียเวลาในการปรุงอาหารของแม่ครัวหรือพ่อครัว.
2. _____ ทำให้รสชาติ
3. _____ ทำให้อร่อย.
4. _____ ดีมาก

* ข้อสังเกตการบริการของพนักงานในร้านอาหารแห่งหนึ่งมีดังนี้ ท่านคิดว่าควรปรับปรุงในเรื่องใดมากที่สุด.

1. _____ ความสะอาดของร้าน. 2 _____ ความรวดเร็วในการบริการ.
3. _____ ความสุภาพเรียบร้อยของพนักงาน. 4 _____ ความสะอาดของห้องน้ำ.

* 10. [illegible]

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]

QUESTIONS TO EVALUATE ATTITUDES

DIRECTIONS: Please choose the answer that best describes how you feel about the statement.

1. When planning meals for a family, it is important to serve foods that contain calcium and iron.

AGREE----- DISAGREE---- NO OPINION---

2. Most people should be concerned about limiting the amount of cholesterol in their diet.

AGREE----- DISAGREE---- NO OPINION---

3. People should read how much salt is in different foods and adjust their diet accordingly.

AGREE----- DISAGREE---- NO OPINION---

4. If people do not eat sugary foods then they will not have enough energy to work and play.

AGREE----- DISAGREE---- NO OPINION---

5. The benefits of having a baby sleep with a bottle are more important than the dangers.

AGREE----- DISAGREE---- NO OPINION---

6. If people just eat what appeals to them, they will typically choose a healthy diet.

AGREE----- DISAGREE---- NO OPINION---

7. Most of the traditional Cambodian foods are healthy.

AGREE----- DISAGREE---- NO OPINION---

8. Children who get enough liquids do not need to also drink milk.

AGREE----- DISAGREE---- NO OPINION---

ដង: សិស្សសរសេរសំណួរដែលសិស្សចង់ឲ្យមិត្តភក្តិឆ្លើយ។

<u>ជំហានទី៣ ការណែនាំ:</u> គ្រូបង្ហាញសិស្សឲ្យដឹងថាតើសិស្សត្រូវធ្វើអ្វីខ្លះ។

ដើម្បីកែលម្អលំហាត់ប្រាណរបស់ខ្លួនឯង: ៤

1. តើសិស្សមានការលំបាកអ្វីខ្លះក្នុងការសរសេរសំណួរ ហើយតើគ្រូអាចជួយសិស្សដោះស្រាយបញ្ហានេះដោយរបៀបណា? ៤

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

2. តើសិស្សមានការលំបាកក្នុងការកំណត់ចម្លើយសម្រាប់សំណួរដែលសិស្សបានសរសេរដោយខ្លួនឯងដែរឬទេ? ៤

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

3. តើសិស្សមានគំនិតយោបល់អ្វីខ្លះសម្រាប់ការកែលម្អសំណួរដែលសិស្សបានសរសេរ? តើសិស្សចង់ឲ្យគ្រូជួយអ្វីខ្លះ?

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

4. តើសិស្សមានអ្វីខ្លះដែលសិស្សចង់ដឹងបន្ថែមអំពីការសរសេរសំណួរ តើនៅមានអ្វីដែលសិស្សមិនទាន់យល់ច្បាស់ឬនៅមានសំណួរអ្វីដែលសិស្សចង់សួរគ្រូ? ៤

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

5. អ្នកគិតថាយើងនឹងធ្វើការសរសេរសំណួរជាច្រើនលើកទៀតឬទេ? ហេតុអ្វីបានជាអ្នកគិតដូច្នោះ: តើអ្នកគិតថាការសរសេរសំណួរនេះមានប្រយោជន៍ដែរឬទេ? ៤

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

6. តើអ្នកគិតថាតើយើងគួរតែធ្វើអ្វីខ្លះដើម្បីឲ្យការសរសេរសំណួរនេះកាន់តែប្រសើរឡើង? តើអ្នកចង់ឲ្យយើងធ្វើអ្វីខ្លះសម្រាប់ការសរសេរសំណួរនាពេលអនាគត?

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

7. តើអ្នកគិតថាតើគ្រូបានយល់ពីអ្វីដែលសិស្សចង់ឲ្យគ្រូធ្វើដើម្បីជួយសិស្សឲ្យកាន់តែមានប្រសិទ្ធភាពឬទេ? ៤

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

8. តើអ្នកមានអ្វីបន្ថែមទៀតដែលអ្នកចង់ប្រាប់គ្រូ (ឬមិត្តភក្តិ) អំពីការសរសេរសំណួរ? ចម្លើយរបស់អ្នកនឹងជួយយើងបានច្រើន ៤

ច្បាស់ណាស់ _____ មិនច្បាស់ទេ _____ គ្មានអ្វីទាំងអស់ _____

PRETEST: QUESTIONS TO EVALUATE CURRENT BEHAVIOR

DIRECTIONS: Before viewing the following video, I would like you to answer the following questions. Check the one that describes you best.

---

1. I cook traditional Cambodian meals

less than once a week---- once a week---- twice a week----
three times a week---- four times a week---- five or more times a week---

2. When I cook, I use pepper, curry, or garlic

less than once a week---- once a week---- twice a week----
three times a week---- four times a week---- five or more times a week---

3. I include canned fruits in my daily diet

less than once a week---- once a week---- twice a week----
three times a week---- four times a week---- five or more times a week---

4. When I cook, I use soy sauce or oyster sauce

less than once a week---- once a week---- twice a week----
three times a week---- four times a week---- five or more times a week---

5. My baby has a bottle to sleep with during the night

less than once a week---- once a week---- twice a week----
three times a week---- four times a week---- five or more times a week---

I HAVE NO BABIES WHO LIVE WITH ME----

6. When I cook, I use MSG or salt

less than once a week---- once a week---- twice a week----
three times a week---- four times a week---- five or more times a week---

7. My children drink milk

less than once a week---- once a week---- several times a week----
once a day---- twice a day---- three or more times a day---
never---

I HAVE NO CHILDREN WHO LIVE WITH ME----

8. Eggs are included in my daily food

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

9. I drink cow's milk

less than once a week---- once a week----- several times a week----
once a day----- twice a day---- three or more times a day---
never---

10. I include fresh fruits in my diet

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

11. I eat meals of only rice and vegetables.

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

12. I eat American "junk" foods as cookies, candies, and potato chips

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

13. I include meat, fish, or chicken in my daily food

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

14. I drink soy milk

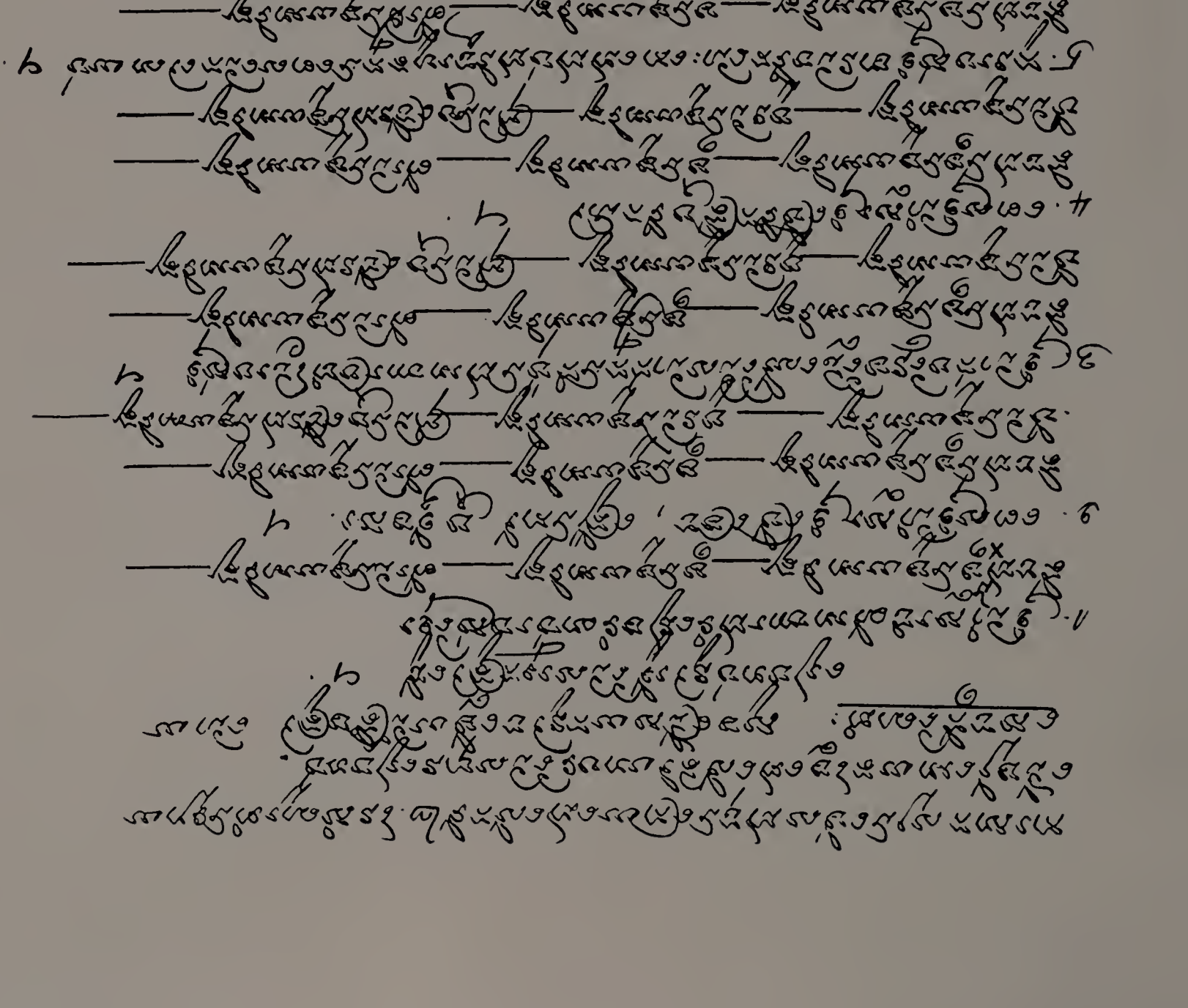
less than once a week---- once a week----- several times a week----
once a day----- twice a day---- three or more times a day---
never---

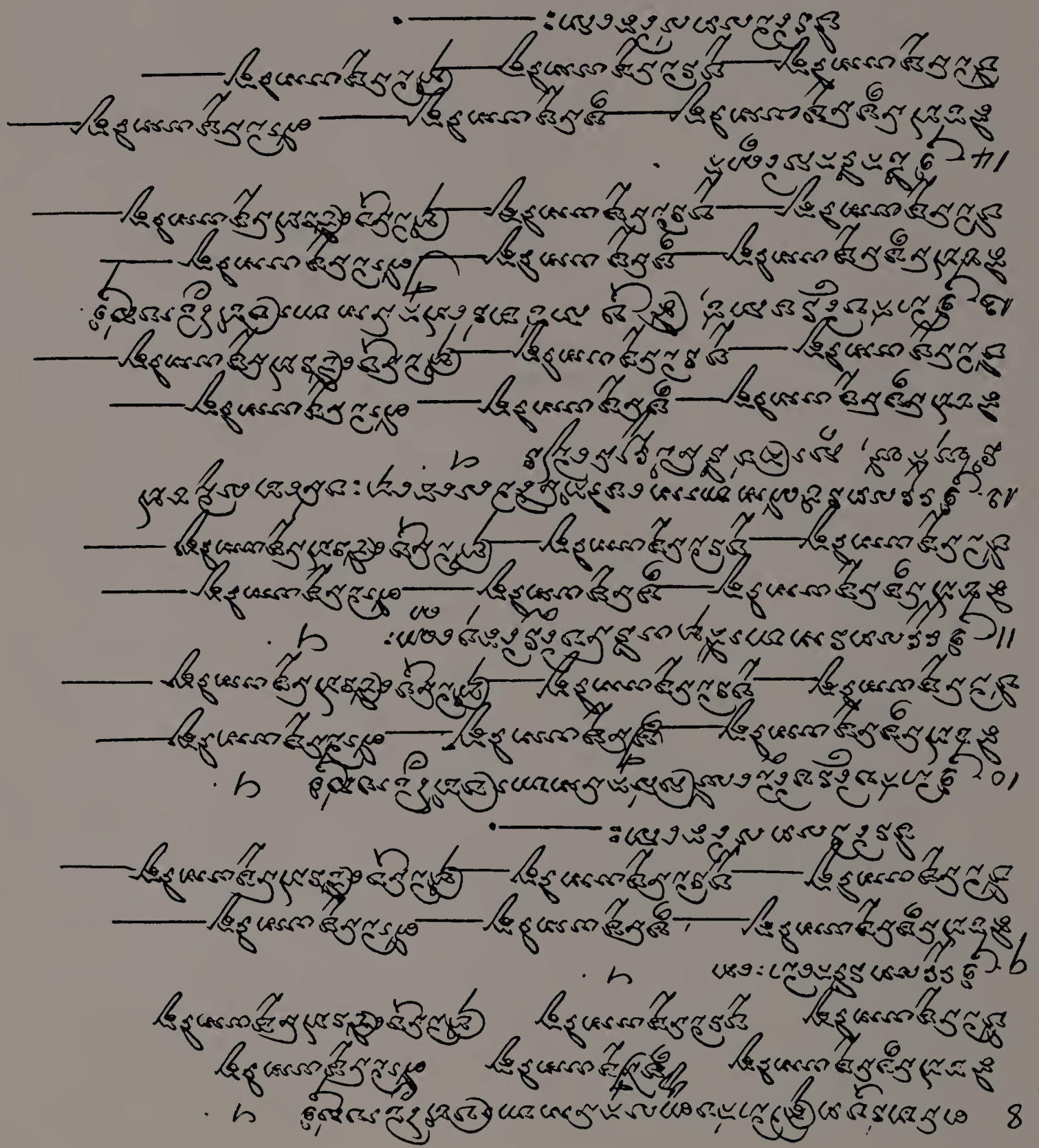
15. I dilute soy sauce or oyster sauce with water or lemon juice

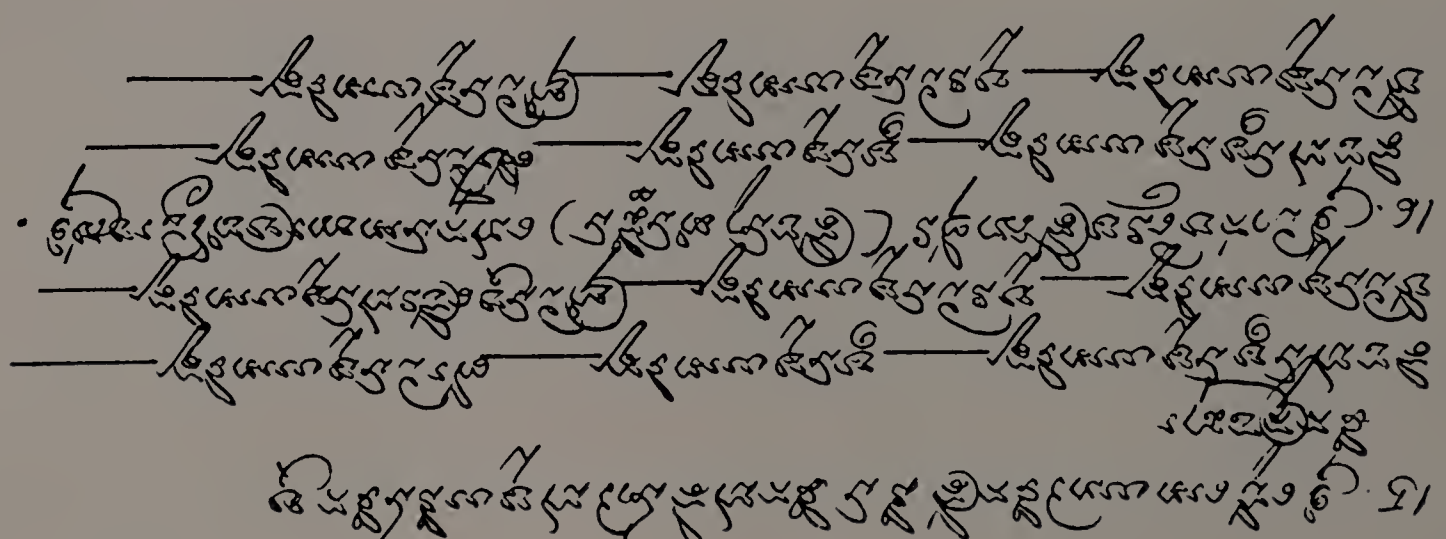
less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

16. I include whole sardines in my daily food

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----







POSTEST 1: QUESTIONS TO EVALUATE PREDICTED BEHAVIOR

DIRECTIONS: After viewing the video, please answer the following questions. Check the one that describes what you think you might or might not do as a result of viewing the video.

1. I will probably cook traditional Cambodian meals

the same as I have been---- more frequently---- less frequently----

2. When I cook, I will probably use pepper, curry, or garlic

the same as I have been---- more frequently---- less frequently----

3. I will probably include canned fruits in my daily diet

the same as I have been---- more frequently---- less frequently----

4. When I cook, I will probably use soy sauce or oyster sauce

the same as I have been---- more frequently---- less frequently----

5. My child will probably have a bottle to sleep with during the night

the same as before---- more frequently---- less frequently----

I HAVE NO BABIES WHO LIVE WITH ME----

6. When I cook, I will probably use MSG or salt

the same as I have been---- more frequently---- less frequently----

7. My children will probably drink milk

the same as they have been---- more frequently---- less frequently----

I HAVE NO CHILDREN WHO LIVE WITH ME----

8. I will probably include eggs in my daily food

the same as I have been---- more frequently---- less frequently----

9. I will probably drink cow's milk

the same as I have been---- more frequently---- less frequently----

10. I will probably include fresh fruits in my diet

the same as I have been---- more frequently---- less frequently----

11. I will probably eat meals of only rice and vegetables

the same as I have been---- more frequently---- less frequently----

12. I will probably eat American "junk" foods such as cookies, candies, and potato chips

the same as I have been---- more frequently---- less frequently----

13. I will probably include meat, fish, or chicken in my daily food

the same as I have been---- more frequently---- less frequently----

14. I will probably drink soy milk

the same as I have been---- more frequently---- less frequently----

15. I will probably dilute soy sauce or oyster sauce with water or lemon juice

the same as I have been---- more frequently---- less frequently----

16. I will probably include whole sardines in my daily food

the same as I have been---- more frequently---- less frequently----

POSTEST 2: QUESTIONS TO EVALUATE REPORTED BEHAVIOR

DIRECTIONS: Choose the answer which best describes what you do.

---

1. I cook traditional Cambodian meals

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

2. When I cook, I use pepper, curry, or garlic

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

3. I include canned fruits in my daily diet

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

4. When I cook, I use soy sauce or oyster sauce

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

5. My child has a bottle to sleep with during the night

less than once a week---- once a week----- twice a week---
three times a week---- four times a week---- five or more times a week----

I HAVE NO BABIES WHO LIVE WITH ME-----

6. When I cook, I use MSG or salt

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

7. My children drink milk

less than once a week---- once a week----- several times a week----
once a day----- twice a day---- three or more times a day---
never---

I HAVE NO CHILDREN WHO LIVE WITH ME-----

8. Eggs are included in my daily food

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

9. I drink cow's milk

less than once a week---- once a week----- several times a week----
once a day----- twice a day---- three or more times a day---
never---

10. I include fresh fruits in my diet

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

11. I eat meals of only rice and vegetables.

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

12. I eat American "junk" foods as cookies, candies, and potato chips

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

13. I include meat, fish, or chicken in my daily food

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

14. I drink soy milk

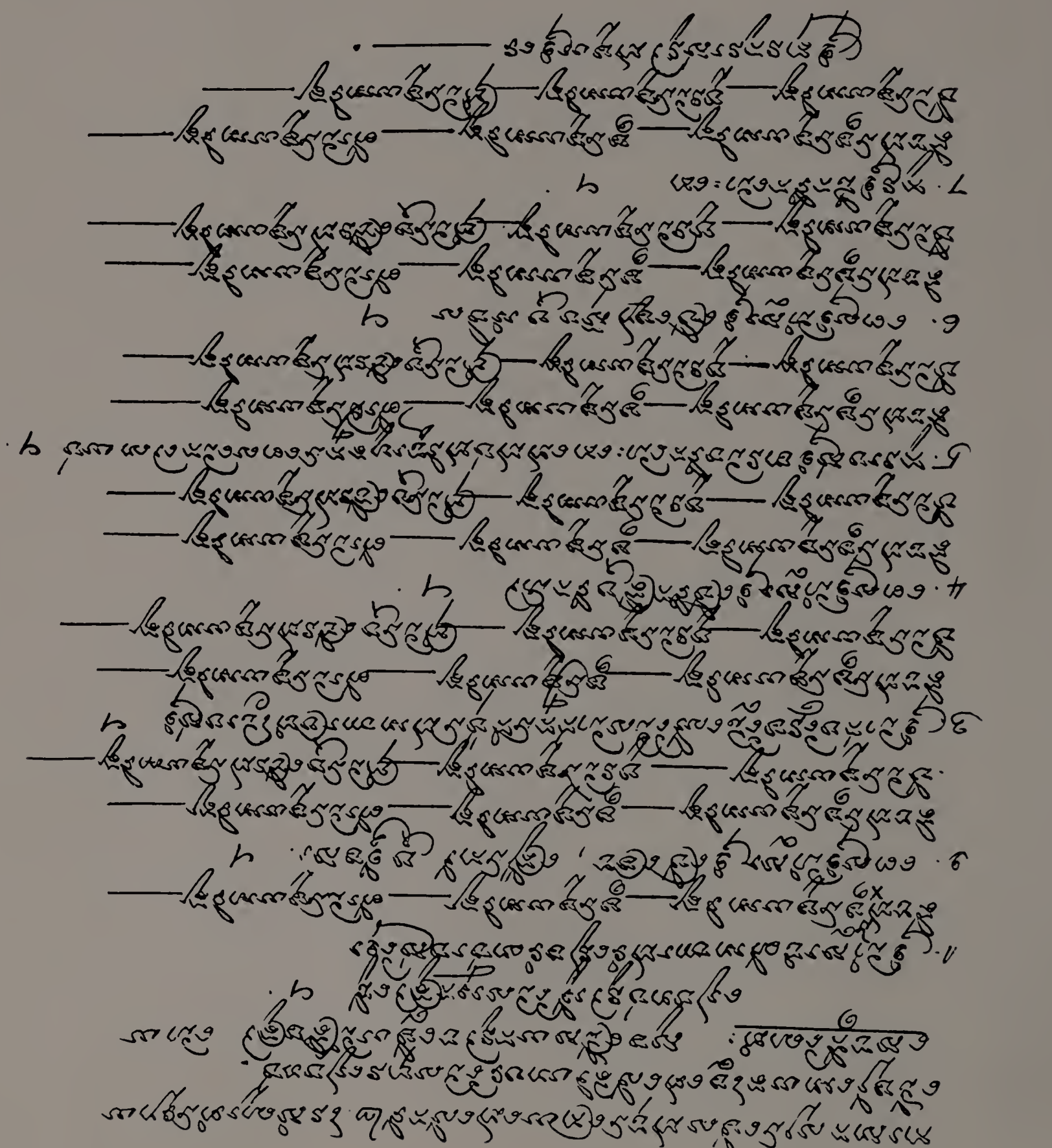
less than once a week---- once a week----- several times a week----
once a day----- twice a day---- three or more times a day---
never---

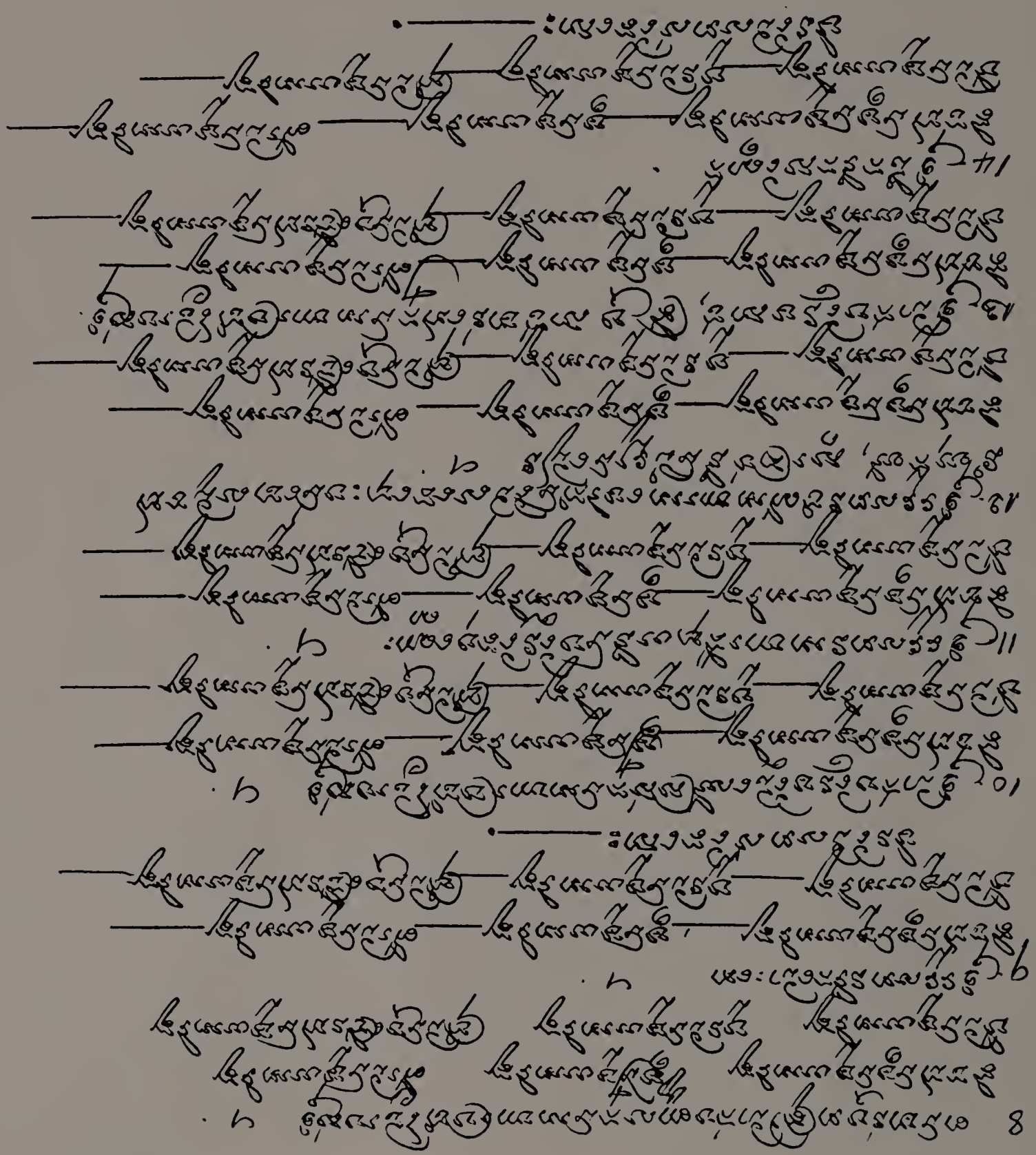
15. I dilute soy sauce or oyster sauce with water or lemon juice

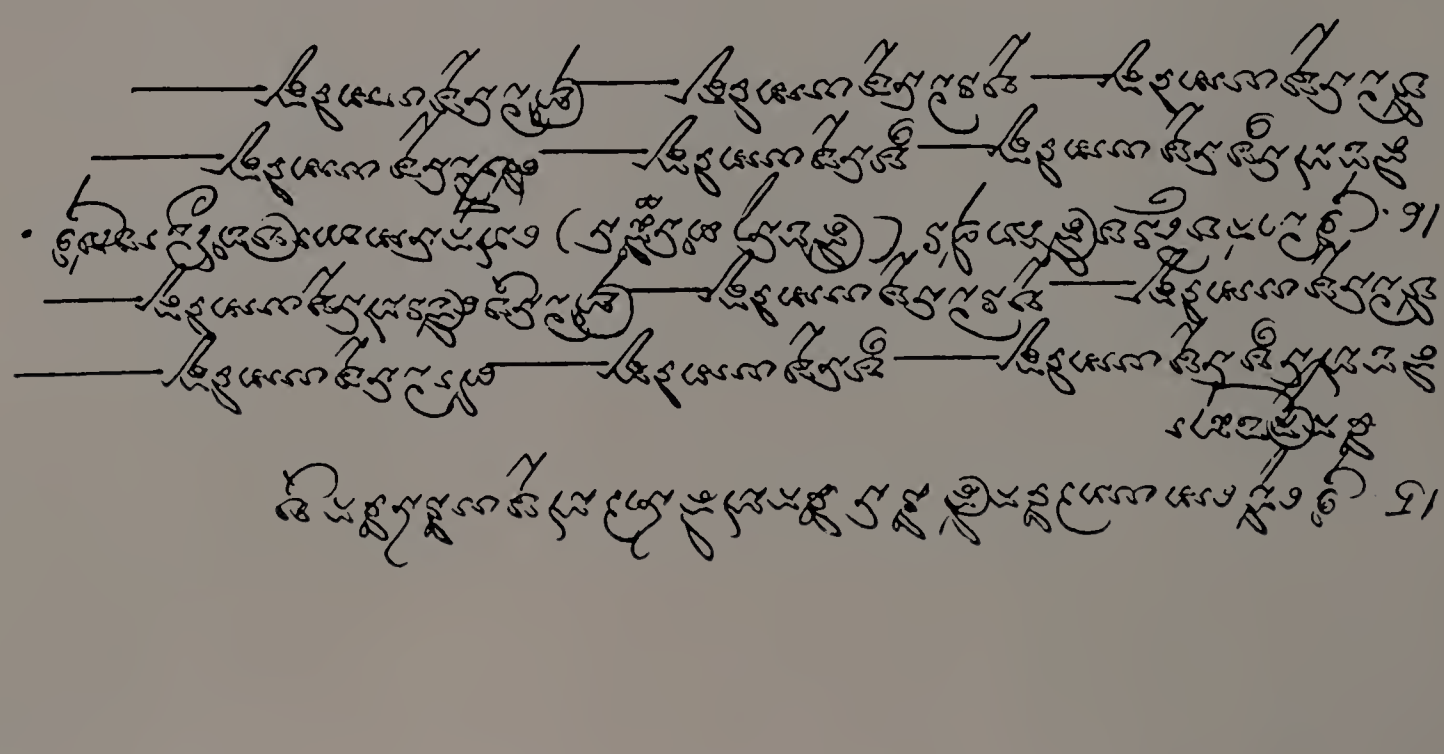
less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----

16. I include whole sardines in my daily food

less than once a week---- once a week----- twice a week----
three times a week---- four times a week---- five or more times a week----







QUESTIONS TO EVALUATE FOR CULTURAL APPROPRIATENESS OF VIDEO

DIRECTIONS: Please choose the answer that best describes your attitude towards the video you just watched.

1. How much of the information on the video was new to you?

MOST OF IT----- SOME OF IT----- NONE OF IT-----

2. How much of the information on the video will you use?

MOST OF IT----- SOME OF IT----- NONE OF IT-----

3. How much of the video was easy to understand?

MOST OF IT----- SOME OF IT----- NONE OF IT-----

4. How much of the video was appropriate to your Cambodian culture?

MOST OF IT----- SOME OF IT----- NONE OF IT-----

5. How much of the video was hard to understand?

MOST OF IT----- SOME OF IT----- NONE OF IT-----

6. How much of the video was true about your Cambodian culture?

MOST OF IT----- SOME OF IT----- NONE OF IT-----

7. Would you recommend the video to family and friends?

YES----- NO----- MAYBE-----

ខ្ញុំនិងមិត្តរួមថ្នាក់ត្រូវការដឹងព័ត៌មានអំពីការប្រើប្រាស់ពេលវេលារបស់ពួកគេ
ដើម្បីកំណត់ថាតើពួកគេមានពេលវេលាសម្រាប់ធ្វើអ្វីខ្លះ។

សកម្មភាព៖ សិស្សនីមួយៗត្រូវបានចែកសន្លឹកកិច្ចការមួយ
ដែលមានសំណួរសម្រាប់ឱ្យពួកគេសិក្សាស្រាវជ្រាវ។

1. តើមានមាតិមានប៉ុន្មានដែលដាក់ឱ្យមានប៉ុន្មានដែរ?

ចានអាចជ្រើស _____ ចានអាចខ្វះ: _____ តើត្រូវការសោះ _____

2. តើមានមាតិមានប៉ុន្មានសៀវភៅដែលត្រូវការសម្រាប់ដែលសិស្សនីមួយៗត្រូវការ?

ចានអាចជ្រើស _____ ចានអាចខ្វះ: _____ តើត្រូវការសោះ: _____

3. តើមានមាតិមានប៉ុន្មានសៀវភៅដែលត្រូវការសម្រាប់ដែលសិស្សម្នាក់ៗ
ត្រូវការសម្រាប់ការងារ?

ចានអាចជ្រើស _____ ចានអាចខ្វះ: _____ តើត្រូវការសោះ _____

4. តើមានបំណែកប៉ុន្មានសៀវភៅដែលត្រូវការសម្រាប់ដែលមានអាចសម្រាប់
ដំណាក់កាលមួយចំនួនរបស់ពួកគេ?

ចានអាចជ្រើស _____ ចានអាចខ្វះ: _____ តើត្រូវការសោះ _____

5. តើមានប៉ុន្មានសៀវភៅដែលត្រូវការសម្រាប់ដែលអាចទៅជាការយល់?

ចានអាចជ្រើស _____ ចានអាចខ្វះ: _____ តើត្រូវការសោះ _____

6. តើមានប៉ុន្មានកន្លែងដែលត្រូវការសម្រាប់ដែលមានអាចទៅដល់ការដឹងពីរបៀបដើម្បីធ្វើ?

ចានអាចជ្រើស _____ ចានអាចខ្វះ: _____ តើត្រូវការសោះ: _____

7. តើសោកនាដកម្មដែលមានបញ្ហាដែលមានអាចទៅជាការដឹងពីរបៀបដើម្បីធ្វើ
អ្វីដែលត្រូវការសម្រាប់ពួកគេ? ?

ភ្លាម _____ ១៥ _____ ចុងក្រោយ _____

NUTRITION EDUCATION FOR CAMBODIAN REFUGEES:
Evaluating a Health Intervention Media Project

To the participants in this study,

I am Barbara Poremba, a nurse who is working on a doctoral degree at the University of Massachusetts at Amherst. My research involves creating a video on nutrition for Cambodian Americans. Now that the video has been made, I would like to evaluate its effectiveness.

I am asking you to participate in my study. You are one of approx- imately twenty participants. You will be asked to watch a short video in Khmer and to participate in a discussion of the video. You will also be asked to answer some questions before and after the video presentation as well as one month later.

My goal is to use your responses to evaluate the benefit of creating such a video for Cambodian Americans. As part of my study, I may wish to use some of the material for a journal article or book, or for presentations to interested groups, or for instructional purposes in my teaching. I will use neither your name, names of people close to you, nor the name of your facility.

You may at any time withdraw from the study. If I chose to use any materials in any way not consistent with what is stated above, I would ask for your additional written consent.

In signing this form, you are also assuring me that you will make no financial claims for the use of the material. You are also stating that no medical treatment will be required by you from the University of Massachusetts should any physical injury result from participating in this study.

I,----------, have read the above statement and agree to participate in this study under the conditions stated above.

----------	----------
Signature of researcher	Signature of participant
----------	----------
Date	Date

APPENDIX C

TABLES

Table 1 Item analysis -- pretest

Item	Discrimination Index (D)	Difficulty Index (p)
1	30	55
2	40	40
3	10	5
4	0	20
5	50	75
6	60	50
7	20	30
8	10	35
9	10	55
10	30	75

Table 2 Item analysis -- posttest 1

Item	Discrimination Index (D)	Difficulty Index (p)
1	0	100
2	0	83
3	33	67
4	33	33
5	17	91
6	33	50
7	33	40
8	67	50
9	33	83
10	0	100

Table 3 Item analysis -- posttest 2

Item	Discrimination Index (D)	Difficulty Index (p)
1	0	100
2	0	100
3	38	31
4	25	25
5	12	94
6	0	88
7	0	88
8	38	31
9	75	50
10	12	94

Table 4 Descriptive statistics for WIC group on pretest for knowledge variable

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: WIC-PRETEST SAMPLE SIZE (N) = 8

SAMPLE STATISTICS:

MEAN	= 37.5	RANGE	= 30
VARIANCE	= 93.7513	MINIMUM	= 20
STD. DEV.	= 9.68253	MAXIMUM	= 50

UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= 107.144	STD. DEV.	= 10.3511

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= -.309832	KURTOSIS	= -.880059

Table 5 Descriptive statistics for other group on pretest for knowledge variable

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: OTHER-PRETEST SAMPLE SIZE (N) = 12

SAMPLE STATISTICS:

MEAN	= 47.5	RANGE	= 60
VARIANCE	= 252.083	MINIMUM	= 10
STD. DEV.	= 15.8771	MAXIMUM	= 70

UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= 275	STD. DEV.	= 16.5831

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= -.710518	KURTOSIS	= .429074

Table 6 Analysis of the variance between WIC and other group on pretest for knowledge variable

A N A L Y S I S O F V A R I A N C E

SUMMARY TABLE

SOURCE	SS	DF	MS
TOTAL	4255.02	19	
BETWEEN	480.014	1	480.014
WITHIN	3775.01	18	209.723

F-RATIO = 2.2888

DEGREES OF FREEDOM = 1 & 18

PROBABILITY OF CHANCE = 0.145

GROUP STATISTICS

GROUP	N	MEAN	S.D.
WIC-PRETEST	8	37.5	10.3511
OTHER-PRETEST	12	47.5	16.5831

Table 7 Descriptive statistics for WIC group on posttest 1 for knowledge variable

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: WIC-POST1 SAMPLE SIZE (N) = 8

SAMPLE STATISTICS:

MEAN	= 71.25	RANGE	= 20
VARIANCE	= 35.9366	MINIMUM	= 60
STD. DEV.	= 5.99471	MAXIMUM	= 80

UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= 41.0703	STD. DEV.	= 6.40862

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= -.0543969	KURTOSIS	= -.313659

Table 8 Descriptive statistics for other group on posttest 1 for knowledge variable

D E S C R I P T I V E S T A T I S T I C S

VARIABLE: OTHER-POST1 SAMPLE SIZE (N) = 12

SAMPLE STATISTICS:

MEAN	= 75	RANGE	= 40
VARIANCE	= 191.661	MINIMUM	= 60
STD. DEV.	= 13.8442	MAXIMUM	= 100

UNBIASED ESTIMATES OF POPULATION PARAMETERS:

VARIANCE	= 209.085	STD. DEV.	= 14.4598

DATA DISTRIBUTION COEFFICIENTS:

SKEWNESS	= .753755	KURTOSIS	= -.759786

Table 9 Analysis of the variance between WIC and other group on posttest 1 for knowledge variable

A N A L Y S I S O F V A R I A N C E

SUMMARY TABLE

SOURCE	SS	DF	MS
TOTAL	2654.98	19	
BETWEEN	67.5586	1	67.5586
WITHIN	2587.42	18	143.746

F-RATIO = .469987

DEGREES OF FREEDOM = 1 & 18

PROBABILITY OF CHANCE = 0.508

GROUP STATISTICS

GROUP	N	MEAN	S.D.
WIC-POST1	8	71.25	6.40862
OTHER-POST1	12	75	14.4598

Table 10 Mean of variables knowledge, attitude, and behavior for pretest, posttest 1, and posttest2

MEAN OF VARIABE KNOWLEDGE ATTITUTE AND BEHAVIOR
1= pretest 2=post test 3 follow up
*** the first line is the mean for all 3 ***
14:06 Tuesday, December 4, 1990

OBS	TEST	_TYPE_	_FREQ_	KNOWL	ATTI	BEHAV
1	.	0	51	6.37255	5.49020	8.9000
2	1	1	17	4.41176	4.35294	9.0353
3	2	1	17	7.41176	5.88235	7.3529
4	3	1	17	7.29412	6.23529	10.3118

Table 11 Standard deviation of variables knowledge, attitude, and behavior for pretest, posttest 1, and posttest 2

STD OF VARIABE KNOWLEDGE ATTITUTE AND BEHAVIOR
1= pretest 2=post test 3 follow up
*** the first line is the std for all 3 ***
14:14 Tuesday, December 4, 1990

OBS	TEST	_TYPE_	_FREQ_	KNOWL	ATTI	BEHAV
1	.	0	51	1.96937	1.60465	2.10590
2	1	1	17	1.58346	1.61791	1.07293
3	2	1	17	1.22774	1.36393	2.49853
4	3	1	17	1.40378	1.20049	1.33598

Table 12 Range of variables knowledge, attitude, and behavior for pretest, posttest 1, and posttest 2

RANGE OF VARIABE KNOWLEDGE ATTITUTE AND BEHAVIOR
1= pretest 2=post test 3 follow up
*** the first line is the range for all 3 ***
14:18 Tuesday, December 4, 1990

OBS	TEST	_TYPE_	_FREQ_	KNOWL	ATTI	BEHAV
1	.	0	51	9	8	9.1
2	1	1	17	6	7	5.1
3	2	1	17	4	4	8.0
4	3	1	17	4	4	4.5

Table 13 Analysis of variance procedure for knowledge variable

Analysis of Variance Procedure

Dependent Variable: KNOWL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	98.15686275	49.07843137	24.60	0.0001
Error	48	95.76470588	1.99509804		
Corrected Total	50	193.92156863			

R-Square	C.V.	Root MSE	KNOWL Mean
0.506168	22.16506	1.4124794	6.37254902

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TEST	2	98.15686275	49.07843137	24.60	0.0001

Table 14 Analysis of variance procedure for attitude variable

Analysis of Variance Procedure

Dependent Variable: ATTI

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	34.03921569	17.01960784	8.63	0.0006
Error	48	94.70588235	1.97303922		
Corrected Total	50	128.74509804			

R-Square	C.V.	Root MSE	ATTI Mean
0.264392	25.58468	1.4046491	5.49019608

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TEST	2	34.03921569	17.01960784	8.63	0.0006

Table 15 Analysis of variance procedure for behavior variable

Analysis of Variance Procedure

Dependent Variable: BEHAV

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	74.88117647	37.44058824	12.24	0.0001
Error	48	146.85882353	3.05955882		
Corrected Total	50	221.74000000			

R-Square	C.V.	Root MSE	BEHAV Mean
0.337698	19.65348	1.7491595	8.90000000

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TEST	2	74.88117647	37.44058824	12.24	0.0001

Table 16 Repeated measures analysis of variance, tests of hypotheses for between subject effects, on total score variable

Analysis of Variance Procedure
Repeated Measures Analysis of Variance
Tests of Hypotheses for Between Subjects Effects

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TEST	2	310.5556863	155.2778431	17.58	0.0001
Error	48	424.0235294	8.8338235		

Table 17 Frequency distribution for cultural variable 1--new information on video

FREQUENCY DISTRIBUTION OF VARIABLE 1 cul1

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	1	12	60.00	66.67
	2	6	30.00	33.33
MISSING	3	2	10.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 18 VALID CASES
MEAN = 1.3333 S.D. = 0.4850711

Table 18 Frequency distribution for cultural variable 2--usefulness of information

FREQUENCY DISTRIBUTION OF VARIABLE 2 cul2

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	1	9	45.00	47.37
	2	10	50.00	52.63
MISSING	3	1	5.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 19 VALID CASES
MEAN = 1.5263 S.D. = 0.5129891

Table 19 Frequency distribution for cultural variable 3--ease in understanding

FREQUENCY DISTRIBUTION OF VARIABLE 3 cul3

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	1	4	20.00	20.00
	2	16	80.00	80.00
MISSING	3	0	0.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 20 VALID CASES
MEAN = 1.8000 S.D. = 0.4103916

Table 20 Frequency distribution for cultural variable 4--appropriateness to Cambodian culture

FREQUENCY DISTRIBUTION OF VARIABLE 4 cul4 PAGE 1

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	1	9	45.00	45.00
	2	11	55.00	55.00
MISSING	3	0	0.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 20 VALID CASES
MEAN = 1.5500 S.D. = 0.5104179

Table 21 Frequency distribution for cultural variable 5--difficulty to understand

FREQUENCY DISTRIBUTION OF VARIABLE 5 cul5 PAGE 1

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	1	7	35.00	43.75
	2	9	45.00	56.25
MISSING	3	4	20.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 16 VALID CASES
MEAN = 1.5625 S.D. = 0.5123475

Table 22 Frequency distribution for cultural variable 6--accuracy in Cambodian culture

FREQUENCY DISTRIBUTION OF VARIABLE 6 cul6 PAGE 1

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	1	9	45.00	45.00
	2	11	55.00	55.00
MISSING	3	0	0.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 20 VALID CASES
MEAN = 1.5500 S.D. = 0.5104179

Table 23 Frequency distribution for cultural variable 7--recommending the video

FREQUENCY DISTRIBUTION OF VARIABLE 7 cul7 PAGE 1

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE	ADJ PERCENTAGE
	2	18	90.00	100.00
MISSING	3	2	10.00	MISSING
TOTAL	TOTAL	20	100.00	100.00

BASED ON 18 VALID CASES
MEAN = 2.0000 S.D. = 0.0000000

Table 24 Frequency distribution for total of all cultural variables

FREQUENCY DISTRIBUTION OF VARIABLE 1 resp

CATEGORY LABEL	CODE	COUNT	RAW PERCENTAGE
maybe	1	50	35.71
yes	2	81	57.86
MISSING	3	9	6.43
TOTAL	TOTAL	140	100.00

BASED ON 131 VALID CASES
MEAN = 1.6183 S.D. = 0.4876635

APPENDIX D

FIGURES

REFUGEES IN MASSACHUSETTS
BY COUNTRY OF ORIGIN
TOTAL NUMBER OF REFUGEES: 36,910

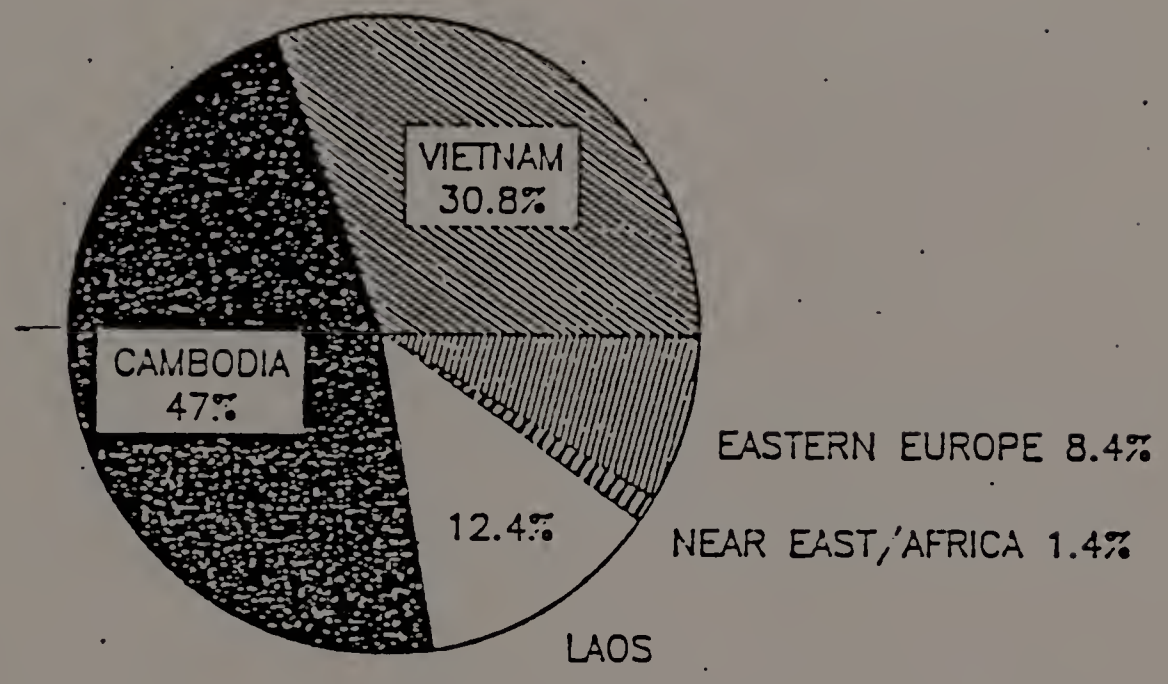


Figure 1 Refugees in Massachusetts by country of origin

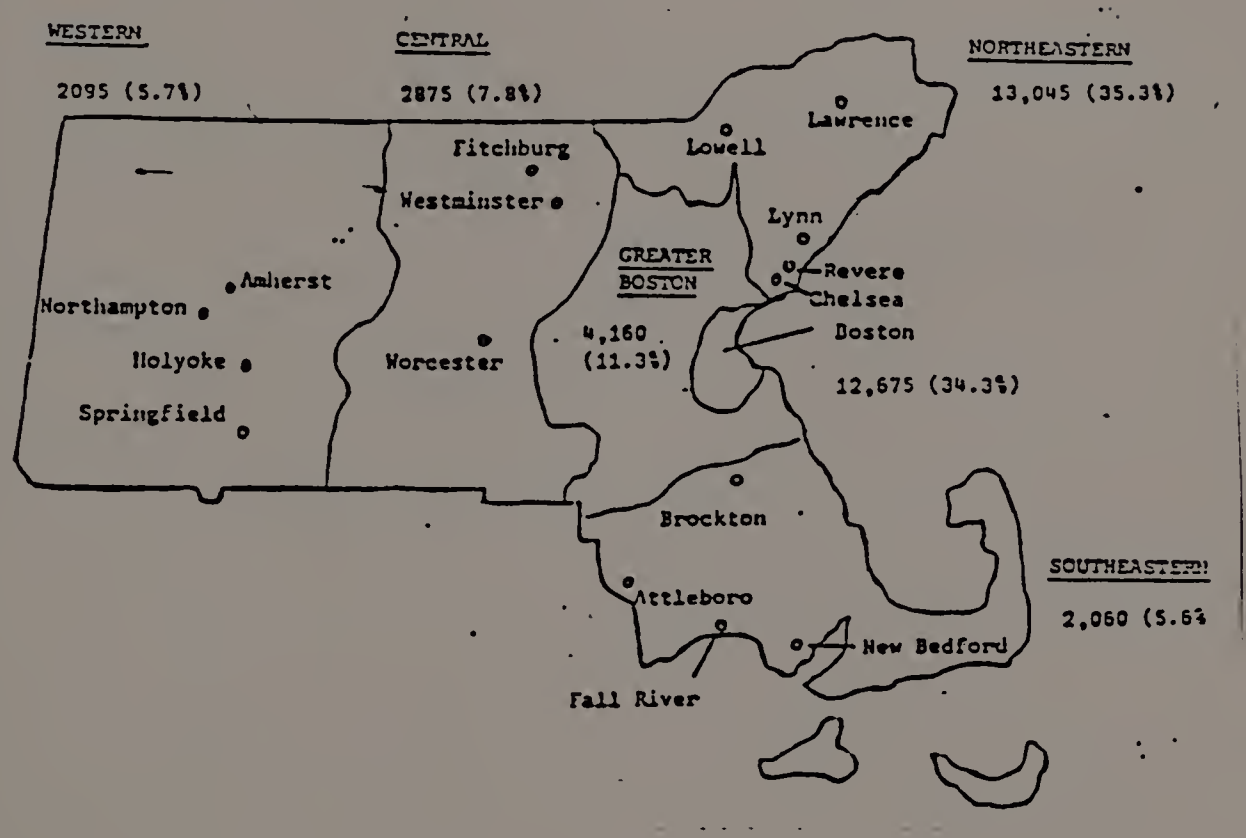


Figure 2 Refugees in Massachusetts by location

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